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–: એકેડેમિક કાઉન્સિલ :–

–: કાર્યસૂચિ –૩ :–

તા.૦૫–૦૨–૨૦૨૨
વાર:શનિવાર **સમય : બપોરે ૧:૦૦ કલાકે**

૨૨. બાયોસાયન્સ વિષયનાં PO, PSO,અને CO અંગે ચર્ચા કરતા બાયોસાયન્સ વિષયની અભ્યાસ સમિતિની તા.૩૧/૦૧/૨૦૨૨ની સભાનાં ઠરાવ ક્રમાંક: ૨ અન્વયે કરેલ ભલામણ વિજ્ઞાન વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિજ્ઞાન વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.

બાયોસાયન્સ વિષયની અભ્યાસ સમિતિની તા.૩૧/૦૧/૨૦૨૨ ની સભાનાં ભલામણ ક્રમાંક: ૨

:: આથી સર્વાનુમતે ઠરાવવામાં આવે છે કે, M.Sc. Bio-Science અને Ph.D.Bio-Science વિષયનાં Programme Outcome, Programme Specific Outcome અને Course Outcome મંજૂર કરવા વિજ્ઞાન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

(બિડાણ: ૧૩)
(સેનેટ/સિન્ડિકેટ વિભાગ)

૨૩. M.Sc. Integrated Bio-Technology કોર્ષનાં PO, PSO and CO બાયોટેકનોલોજી વિષયની નિયૂકત એડહોક સમિતિની તા.૩૧/૦૧/૨૦૨૨ ની સભાનાં ઠરાવ ક્રમાંક: ૨ અન્વયે કરેલ ભલામણ વિજ્ઞાન વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિજ્ઞાન વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.

બાયોટેકનોલોજી વિષયની નિયૂકત એડહોક સમિતિની તા.૩૧/૦૧/૨૦૨૨ ની સભાનાં ભલામણ ક્રમાંક: ૨

:: આથી ઠરાવવામાં આવે છે કે, M.Sc Integreted Bio-Technology કોર્ષના PO,PSO,CO અંગે જરૂરી ફેરફારો કરી સર્વાનુમતે સ્વીકારી વિજ્ઞાન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

(બિડાણ: ૧૪)
(સેનેટ/સિન્ડિકેટ વિભાગ)

૨૪. P.G. Diploma in Molecular & Biochemical Technology કોર્ષનાં PO, PSO and CO બાયોટેકનોલોજી વિષયની નિયૂકત એડહોક સમિતિની તા.૩૧/૦૧/૨૦૨૨ ની સભાનાં ઠરાવ ક્રમાંકઃ ૩ અન્વયે કરેલ ભલામણ વિજ્ઞાન વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિજ્ઞાન વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.

<u>બાયોટેકનોલોજી વિષયની નિયૂકત એડહોક સમિતિની તા.૩૧/૦૧/૨૦૨૨ ની સભાનાં ભલામણ ક્રમાંકઃ ૩</u>

:: આથી ઠરાવવામાં આવે છે કે, P.G. Diploma in Molecular & Bio-Technology કોર્ષના PO,PSO,CO અંગે જરૂરી ફેરફારો કરી સર્વાનુમતે સ્વીકારી વિજ્ઞાન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

(બિડાણઃ૧૫)
(સેનેટ/સિન્ડિકેટ વિભાગ)

૨૫. સેમેસ્ટર ૧૦ માં BT: R- 4002 Review of Research Publication માટે ૧૦ પેપર નકકી કરવા ચર્ચા કરતા બાયોટેકનોલોજી વિષયની નિયૂકત એડહોક સમિતિની તા.૩૧/૦૧/૨૦૨૨ ની સભાનાં ઠરાવ ક્રમાંકઃ ૪ અન્વયે કરેલ ભલામણ વિજ્ઞાન વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિજ્ઞાન વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.

<u>બાયોટેકનોલોજી વિષયની નિયૂકત એડહોક સમિતિની તા.૩૧/૦૧/૨૦૨૨ ની સભાનાં ભલામણ ક્રમાંકઃ ૪</u>

:: આથી ઠરાવવામાં આવે છે કે, સેમેસ્ટર ૧૦ માં BT: R- 4002 Review of Research Publication માટે ૧૦ પેપર નકકી કરવા માટે આ સાથે સામેલ બિડાણ મુજબનો નામોની યાદીને વિજ્ઞાન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

(બિડાણઃ૧૬)
(સેનેટ/સિન્ડિકેટ વિભાગ)

૨૬. M.A. English વિષયનાં PO, PSO and CO અંગ્રેજી વિષયની અભ્યાસ સમિતિનાં ચેરમેનશ્રીએ બોર્ડવતી અને વિનયન વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિનયન વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.

(બિડાણઃ૧૭)
(સેનેટ/સિન્ડિકેટ વિભાગ)

૨૭. Post Graduate Programme MLW, MA (HRD) અને MA (HRM & LR) ના P O, PSO અને CO અંગે HRD અને Labour Welfare વિષયની અભ્યાસ સમિતિની સંયુકત તા.૨૧–૧૦–૨૦૨૧ની સભાનાં ઠરાવ ક્રમાંકઃ ૨ અન્વયે વિનયન વિદ્યાશાખાને ભલામણ કરેલ જે વિનયન વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિનયન વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.

HRD અને Labour Welfare વિષયની અભ્યાસ સમિતિની સંયુકત તા.૨૧–૧૦–૨૦૨૧ની સભાનાં ભલામણ ક્રમાંકઃ ૨

:: આથી ઠરાવવામાં આવે છે કે, Post Graduate Programme MLW, MA(HRD) અને MA(HRM&LR) ના Programme Outcome, Programme Specific Outcome અને Course Outcome મંજૂર કરી વિનયન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

(બિડાણઃ૧૮)
(સેનેટ/સિન્ડિકેટ વિભાગ)

૨૮. P.G. Diploma in Research Methodology, P.G. Diploma in Corporate Social Responsibility અને P.G. Diploma in Human Resource Management પ્રોગ્રામના PO, PSO, અને CO અંગે HRD અને Labour Welfare વિષયની અભ્યાસ સમિતિની સંયુકત તા.૨૧–૧૦–૨૦૨૧ની સભાનાં ઠરાવ ક્રમાંકઃ ૩ અન્વયે વિનયન વિદ્યાશાખાને ભલામણ કરેલ જે વિનયન વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિનયન વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.

HRD અને Labour Welfare વિષયની અભ્યાસ સમિતિની સંયુકત તા.૨૧–૧૦–૨૦૨૧ની સભાનાં ભલામણ ક્રમાંકઃ ૩

:: આથી ઠરાવવામાં આવે છે કે, P.G. Diploma in Research Methodology, P.G. Diploma in Corporate Social Responsibility અને P.G. Diploma in Human Resource Management પ્રોગ્રામના Programme Outcome, Programme Specific Outcome અને Course Outcome મંજૂર કરી વિનયન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

(બિડાણઃ૧૯)
(સેનેટ/સિન્ડિકેટ વિભાગ)

૨૯. એમ.એ. સમાજશાસ્ત્રના અભ્યાસક્રમનું પ્રોગ્રામ આઉટકમ, પ્રોગ્રામ સ્પેસેફિક આઉટકમ, કોર્ષ આઉટકમ અંગે ચર્ચા કરતા સમાજશાસ્ત્ર વિષયની અભ્યાસ સમિતિની તા.૩૦/૦૯/૨૦૨૧ની સભાનાં ઠરાવ ક્રમાંકઃ૪ અન્વયે વિનયન વિદ્યાશાખાને ભલામણ કરેલ જે વિનયન વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિનયન વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.

<u>સમાજશાસ્ત્ર વિષયની અભ્યાસ સમિતિની તા.૩૦/૦૯/૨૦૨૧ની સભાનાં ઠરાવ ક્રમાંકઃ૪</u>

:: આથી ઠરાવવામાં આવે છે કે, એમ.એ. સમાજશાસ્ત્રના અભ્યાસક્રમનું પ્રોગ્રામ આઉટકમ (Programm Outcome),પ્રોગ્રામ સ્પેસેફિક આઉટકમ(Programm Specific Outcome), કોર્ષ આઉટકમ (Course Outcome) સર્વાનુમતે મંજૂર કરવામાં આવે છે.

(બિડાણઃ૨૦)
(સેનેટ/સિન્ડિકેટ વિભાગ)

૩૦. B.Sc.(I.T.) , M.Sc. (I.T.) અને M.Sc. (I.C.T.) નાં અભ્યાસક્રમાનાં PO, PSO and CO ઈન્ફોમેશન ટેકનોલોજી વિષયની અભ્યાસ સમિતિની તા.૦૭/૧૦/૨૦૨૧ની સભાનાં ઠરાવ ક્રમાંકઃ૨ અન્વયે કરેલ ભલામણ કોમ્પ્યુટર સાયન્સ એન્ડ ઈન્ર્ફોમેશન ટેકનોલોજી વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.

<u>ઈન્ફોમેશન ટેકનોલોજી વિષયની અભ્યાસ સમિતિની તા.૦૭/૧૦/૨૦૨૧ની સભાનાં ઠરાવ ક્રમાંકઃ૨</u>

:: આથી ઠરાવવામાં આવે છે કે, યુનિવર્સિટી પત્ર ક્રમાંકઃ No. IQAC/14418/2021, Dt.23/09/2021 મુજબ PO, PSO, & CO, રજુ કરવા જણાવવામાં આવે છે તે પરિશિષ્ટ–૧ મુજબ આ સાથે સામેલ છે. જે અંગે કોમ્પ્યુટર સાયન્સ એન્ડ ઈન્ર્ફોમેશન ટેકનોલોજી વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

(બિડાણઃ૨૧)
(સેનેટ/સિન્ડિકેટ વિભાગ)

૩૧. B.Ed અને M.Ed. કોર્ષના PO, PSO and CO અંગે ચર્ચા કરતા શિક્ષણ વિદ્યાશાખા તથા શિક્ષણ વિદ્યાશાખા અંતર્ગત ત્રણેય અભ્યાસ સમિતિની સંયૂકત તા. ૦૨/૦૨/૨૦૨૨ ની સભાના ઠરાવ ક્રમાંકઃ ૨ અન્વયે એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.

<u>શિક્ષણ વિદ્યાશાખા તથા શિક્ષણ વિદ્યાશાખાની અભ્યાસ સમિતિની સંયૂકત તા.૦૨/૦૨/૨૦૨૨ની સભાના ઠરાવ ક્રમાંકઃ ૨</u>

:: આથી ઠરાવવામાં આવે છે કે, B.Ed અને M.Ed કોર્ષના PO, PSO and CO શિક્ષણ વિદ્યાશાખા તથા શિક્ષણ વિદ્યાશાખા અંતર્ગત ત્રણેય અભ્યાસ સમિતિની સંયૂકત તા. ૦૨/૦૨/૨૦૨૨ ની સભાના ઠરાવ ક્રમાંકઃ ૨ અન્વયે સવાનુમતે મંજુર કરવામાં આવે છે.

(બિડાણઃ ૨૨)
(સેનેટ/સિન્ડિકેટ વિભાગ)

૩૨. બી.એડ્. પ્રવેશ માટે B.B.A. / M.B.A. થયેલા વિદ્યાર્થીઓને કોમર્સ મેથડના ભાગરૂપે અર્થશાસ્ત્ર / એકાઉન્ટ વિષય માટે પ્રવેશપાત્ર ગણવા સાથેના ડીનશ્રીના શિક્ષણ વિદ્યાશાખાના તા. ૩૧/૦૨/૨૦૨૨ના પત્રથી ભલામણ કરેલ છે. જે અંગે ચર્ચા કરતાં શિક્ષણ વિદ્યાશાખા તથા શિક્ષણ વિદ્યાશાખા અંતર્ગત ત્રણેય અભ્યાસ સમિતિની સંયૂકત તા. ૦૨/૦૨/૨૦૨૨ ની સભાના ઠરાવ ક્રમાંકઃ ૪ અન્વયે એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.

<u>શિક્ષણ વિદ્યાશાખા તથા શિક્ષણ વિદ્યાશાખાની અભ્યાસ સમિતિની સંયૂકત તા.૦૨/૦૨/૨૦૨૨ની સભાના ઠરાવ ક્રમાંકઃ</u>૪

:: આથી ઠરાવવામાં આવે છે કે, બી.એડ્. પ્રવેશ માટે બી.બી.એ. અને એમ.બી.એ. વિદ્યાર્થીઓને કોમર્સ મેથડના ભાગરૂપે અર્થશાસ્ત્ર / એકાઉન્ટ પધ્ધતિ માટે પ્રવેશપાત્ર ગણવા ભલામણ છે. સ્નાતક કક્ષાના પ્રવેશપાત્ર વિષયને આધારે મેરીટની ગણતરી કરવી અને સ્નાતક કક્ષા અને અનુસ્નાતક કક્ષાએ સમાન વિષયો હોય તો મેરીટ માટે અનુસ્નાતકના ગુણની ગણતરી કરવી પણ અનુસ્નાતક કક્ષાએ અન્ય કોઈ વિષય હોય તો તેની મેરીટ ગણતરીમાં ધ્યાને લેવું નહી.

(અનુસ્નાતક વિભાગ)

૩૩. ઈતિહાસ વિષયની અભ્યાસ સમિતિની તા. ૦૧/૦૨/૨૦૨૨ વિનયનની સભાના ઠરાવ ક્રમાંકઃ ૨ અન્વયે નીચે મુજબ ઠરાવેલ એફ.વાય.બી.એ. સેમેસ્ટર–૧ અને ૨ ના ઈતિહાસ વિષયના અભ્યાસક્રમમાં સુધારો કરી વિનયન વિદ્યાશાખાની મંજુરીની અપેક્ષાએ વિનયન વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.

<u>ઈતિહાસ વિષયની અભ્યાસ સમિતિની તા.૦૧/૦૨/૨૦૨૨ની સભાના ઠરાવ ક્રમાંકઃ ૨</u>

:: આથી ઠરાવવામાં આવે છે કે, એફ.વાય.બી.એ. સેમ–૧ માં ઈતિહાસના પેપર–૧ અને ૨ તથા સેમેસ્ટર–૨ ઈતિહાસના પેપર નં.–૩ અને ૪ ના ટાઈટલમાં નીચે મુજબ સુધારો કરી વિનયન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

ઈતિહાસ પેપર–૧	History of Ancient India (Indus Civilization to the Mauryan era)
ઈતિહાસ પેપર–૨	Trends in the Contemporary History of India-Part-1
ઈતિહાસ પેપર–૩	History of Ancient India (Shung Dynasty to the Rajput era)
ઈતિહાસ પેપર–૪	Trends in the Contemporary History of India-Part-2

(બિડાણ.૨૩)
(સેનેટ/સિન્ડિકેટ વિભાગ)

૩૪. M.Sc. Mathematics વિષયના PO, PSO અને CO અંગે ચર્ચા કરતા ગણિતશાસ્ત્ર વિષયની અભ્યાસ સમિતિની તા.૦૧/૦૨/૨૦૨૨ની સભાનાં ઠરાવ ક્રમાંકઃ ૨ અન્વયે કરેલ ભલામણ વિજ્ઞાન વિદ્યાશાખાનાં અધ્યક્ષશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે. જે અંગે વિચારણા કરવા બાબત.

ગણિતશાસ્ત્ર વિષયની અભ્યાસ સમિતિની તા.૦૧/૦૨/૨૦૨૨ની સભાનાં ઠરાવ ક્રમાંકઃ ૨

:: આથી ઠરાવવામાં આવે છે કે, M.Sc.Mathematics વિષયના Programm Outcome, Programm Specific Outcome અને Course Outcome સર્વાનુંમતે મંજૂર કરી વિજ્ઞાન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

(બિડાણ.૨૪)

(સેનેટ/સિન્ડિકેટ વિભાગ)

૩૫. યુનિવર્સિટી પરિપત્ર ક્રમાંકઃએકે/પરિપત્ર/૯૬૬૭/૨૧, તા.૭/૭/૨૦૨૧ મુજબ ડીપાર્ટમેન્ટ ઓફ આઈ.સી.ટી. માટે પ્રેકટીકલ વિષય માટેનાં વર્કલોડ બાબતે ચર્ચા કરતા ઈન્ફોમેશન ટેકનોલોજી વિષયની અભ્યાસ સમિતિની તા.૦૭/૧૦/૨૦૨૧ની સભાનાં ઠરાવ ક્રમાંકઃ૧ અન્વયે કરેલ ભલામણ કોમ્પ્યુટર સાયન્સ એન્ડ ઈન્ર્ફોમેશન ટેકનોલોજી વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.

ઈન્ફોમેશન ટેકનોલોજી વિષયની અભ્યાસ સમિતિની તા.૦૭/૧૦/૨૦૨૧ની સભાનાં ઠરાવ

ક્રમાંકઃ૨

:: આથી ઠરાવવામાં આવે છે કે, બી.એસસી.(આઈ.ટી) પ્રેકટીકલ વિષયો માટે બેચ દીઠ ૧૦ કલાકનો વર્કલોડ આપવામાં આવે છે. જે પૈકીનાં ૫ કલાકનાં લેબવર્ક માટે લેબમાં અધ્યાપકની હાજરી અનિવાર્ય રહેશે તથા ૫ કલાકનો વર્કલોડ જ અધ્યાપકનાં કુલ વર્કલોડની ગણતરીમાં લેવામાં આવશે. જે દરમ્યાન વિદ્યાર્થી લેબમાં સ્વ–અભ્યાસ તેમજ પ્રેકટીસ કરી શકશે. જેનો સમયગાળો અધ્યાપક નાં વર્કલોડમાં ગણવામાં આવશે નહીં. આ વધારાના ૫ કલાકનાં સમયગાળા દરમ્યાન વિદ્યાર્થી ધ્વારા અધ્યાપક પાસેથી માર્ગદર્શન મેળવી શકશે. જે અંગે કોમ્પ્યુટર સાયન્સ એન્ડ ઈન્ર્ફોમેશન ટેકનોલોજી વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

(સેનેટ/સિન્ડિકેટ વિભાગ)

૩૬. Five Year Integrated Programme MRS(SD) Semester- 5 નો અભ્યાસક્રમ તૈયાર કરવા બાબતે ચર્ચા કરતા ગ્રામ અભ્યાસ અભ્યાસસમિતિની તા.૨૯/૦૧/૨૦૨૨ સભાનાં ઠરાવ ક્રમાંકઃ ૨ અન્વયે કરેલ ભલામણ ગ્રામ અભ્યાસ વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિને ભલામણ કરેલ છે. જે અંગે વિચારણા કરવા બાબત.

ગ્રામ અભ્યાસ અભ્યાસસમિતિની તા.૨૯/૦૧/૨૦૨૨ સભાનાં ભલામણ ક્રમાંકઃ ૨

:: આથી ઠરાવવામાં આવે છે કે, શૈક્ષણિક વર્ષ ૨૦૨૨–૨૩ થી અમલમાં આવનાર Five Year Integrated Programme MRS(SD) Semester- 5 નો અભ્યાસક્રમ મંજૂર કરવામાં આવે છે અને આગળની કાર્યવાહી માટે ગ્રામ અભ્યાસ વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

(બિડાણ.૨૫)

(સેનેટ/સિન્ડિકેટ વિભાગ)

૩૭. Five Year Integrated Programme MRS(SD) નાં MCQ ની Question Bank અંગે ચર્ચા કરતા ગ્રામ અભ્યાસ અભ્યાસસમિતિની તા.૨૯/૦૧/૨૦૨૨ સભાનાં ઠરાવ ક્રમાંકઃ ૩ અન્વયે કરેલ ભલામણ ગ્રામ અભ્યાસ વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિને ભલામણ કરેલ છે. જે અંગે વિચારણા કરવા બાબત.

<u>ગ્રામ અભ્યાસ અભ્યાસસમિતિની તા.૨૯/૦૧/૨૦૨૨ સભાનાં ભલામણ ક્રમાંકઃ ૩</u>

:: આથી ઠરાવવામાં આવે છે કે, Five Year Integrated Programme MRS(SD) નાં MCQ ની Question Bank બનાવવા માટે ડૉ.દિપકભાઈ ભોયે ધ્વારા આપવામાં આવેલી પરિક્ષકોની યાદીને યથાવત સ્વીકારી મંજૂરી માટે ગ્રામ અભ્યાસ વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

(સેનેટ/સિન્ડિકેટ વિભાગ)

૩૮. યુનિવર્સિટીનાં પરીક્ષા વિભાગનાં ક્રમાંકઃપરીક્ષા/એ/૧૨૪૬/૨૦૨૨, તા.૧૩/૦૧/૨૦૨૨નાં પત્ર અનુસાર બદલાયેલ અભ્યાસક્રમનાં વિષયમાં જુના અભ્યાસક્રમની વધુ ટ્રાયલ બાબતે ચર્ચા કરતા ગ્રામ અભ્યાસ અભ્યાસસમિતિની તા.૨૯/૦૧/૨૦૨૨ સભાનાં ઠરાવ ક્રમાંકઃ ૪ અન્વયે કરેલ ભલામણ ગ્રામ અભ્યાસ વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિને ભલામણ કરેલ છે. જે અંગે વિચારણા કરવા બાબત.

<u>ગ્રામ અભ્યાસ અભ્યાસસમિતિની તા.૨૯/૦૧/૨૦૨૨ સભાનાં ભલામણ ક્રમાંકઃ ૪</u>

:: આથી ઠરાવવામાં આવે છે કે, અભ્યાસક્રમ બદલાય તેવા સંજોગોમાં વિદ્યાર્થીને પોતાના મુળ પ્રયત્ન સિવાય વધારાનો એક પ્રયત્ન જુના અભ્યાસક્રમ મુજબ આપવો. પરંતુ જે કિસ્સાઓમાં વિષયનાં ટાઈટલ બદલાય તથા અભ્યાસક્રમમાં સંપૂર્ણ ફેરફાર થાય એવા કિસ્સાઓમાં વધારાના બે પ્રયત્ન જુના અભ્યાસક્રમ મુજબ આપવા ગ્રામ અભ્યાસ વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

(સેનેટ/સિન્ડિકેટ વિભાગ)

૩૯. એમ.એ. સેમેસ્ટર–૪ EC-04 અર્થશાસ્ત્રમાં ડેઝરટેશન (Dessertation on Agricultural Economics) ના વિકલ્પમાં EC-04 કૃષિ અર્થશાસત્ર–IV (Agricultural Development and Issues in Gujarat) આપવા અંગે ચર્ચા કરતા અર્થશાસ્ત્ર વિષયની અભ્યાસસમિતિની તા.૨૭/૦૧/૨૦૨૨ની સભાનાં ઠરાવ ક્રમાંકઃ ૨ અન્વયે વિનયન વિદ્યાશાખાને કરેલ ભલામણ વિનયન વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિનયન વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.

<u>અર્થશાસ્ત્ર વિષયની અભ્યાસ સમિતિની તા.૨૭/૦૧/૨૦૨૨ની સભાનાં ઠરાવ ક્રમાંકઃ૨</u>

:: **આથી ઠરાવવામાં આવે છે કે,** એમ.એ. સેમેસ્ટર-૪ (રેગ્યુલર) અર્થશાસ્ત્ર પેપર EC-04 કૃષિ અર્થશાસ્ત્રમાં ડેઝરટેશન (Dissertation on Agricultural Economics)ના વિકલ્પ તરીકે નવું પેપર EC-04 ગુજરાતમાં કૃષિ વિકાસ અને મુદ્દાઓ-IV (Agricultural Development and Issues in Gujarat-IV)ને શૈ.વર્ષઃ ૨૦૨૧-૨૨થી અમલમાં આવે એવું સભા તરફથી સર્વાનુમતે મંજૂર કરીને વિનયન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

(બિડાણ.૨૬)
(સેનેટ/સિન્ડિકેટ વિભાગ)

૪૦. શિક્ષણ વિદ્યાશાખા અને વિદ્યાશાખા અંતર્ગત ત્રણેય અભ્યાસસમિતિની સંયુકત સભાની તા.૦૨/૦૨/૨૦૨૨ ની સભાના ઠરાવ ક્રમાંક : ૩(૩) અન્વયે એમ.એડ્. સેમેસ્ટર–૪ ની ઈન્ટર્નશીપ વર્તમાન સત્રવ્યવસ્થામાં તા. ૨૧/૦૨/૨૦૨૨ થી તા. ૧૯/૦૩/૨૦૨૨ સુધી કરી નીચે મુજબ સુધારેલ સત્રવ્યવસ્થા સ્વીકારેલ છે, જે અંગે વિચારણા કરવા બાબત.

સુધારેલ સત્ર વ્યવસ્થા
શિક્ષણ વિદ્યાશાખા માટે
શૈક્ષણિક વર્ષ ૨૦૨૧–૨૦૨૨ ની સત્રવ્યવસ્થા
દ્વિતીય સત્ર

ક્રમ	વિગત			તારીખ
૧.	શૈક્ષણિક કાર્યની શરૂઆત (કોલેજ અને ડિપાર્ટમેન્ટ)			તા. ૧૦/૦૧/૨૦૨૨ થી તા. ૧૮/૦૫/૨૦૨૨
	(૧) સ્નાતક કક્ષા			
	a)એફ.વાય.બી.એડ્. સેમેસ્ટર–૨			તા. ૧૦/૦૧/૨૦૨૨
	b)એસ.વાય.બી.એડ્. સેમેસ્ટર–૪			તા. ૨૦/૦૧/૨૦૨૨
	(૨) અનુસ્નાતક કક્ષા			
	a)એફ.વાય.એમ.એડ્. સેમેસ્ટર–૨			તા. ૧૫/૦૧/૨૦૨૨
	b)એસ.વાય.એમ.એડ્. સેમેસ્ટર–૪			તા. ૧૫/૦૧/૨૦૨૨
૨.	ઈન્ટર્નશીપ			
	(૧) સ્નાતક કક્ષા (બી.એડ્.) –એસ.વાય.બી.એડ્. સેમેસ્ટર–૪			તા.૨૪/૦૧/૨૦૨૨ થી તા. ૧૯/૦૩/૨૦૨૨
	(૨) અનુસ્નાતક કક્ષા (એમ.એડ્.) –એસ.વાય.એમ.એડ્. સેમેસ્ટર–૪			તા.૨૧/૦૨/૨૦૨૨ થી તા. ૧૯/૦૩/૨૦૨૨
૩.	આંતરિક પરીક્ષા	બી.એડ્. સેમ–૨ બી.એડ્. સેમ–૪		તા.૨૫/૦૪/૨૦૨૨ થી તા. ૨૮/૦૪/૨૦૨૨ તા.૦૫/૦૫/૨૦૨૨ થી તા. ૦૭/૦૫/૨૦૨૨
		એમ.એડ્. સેમ–૨ એમ.એડ્. સેમ–૪		તા.૧૮/૦૪/૨૦૨૨ થી તા. ૨૧/૦૪/૨૦૨૨
૪.	યુનિવર્સિટી ની પરીક્ષાઓ	ATKT (બી.એડ્. સેમે. ૧ અને ૩)		તા. ૦૪/૦૪/૨૦૨૨ થી તા.૦૭/૦૪/૨૦૨૨
		Regular	બી.એડ્. સેમ–૨ બી.એડ્. સેમ–૪	તા. ૧૦/૦૫/૨૦૨૨ થી તા. ૧૩/૦૫/૨૦૨૨ તા. ૧૨/૦૫/૨૦૨૨ થી તા. ૧૪/૦૫/૨૦૨૨
			એમ.એડ્. સેમ–૨ એમ.એડ્. સેમ–૪	તા. ૦૯/૦૫/૨૦૨૨ થી તા. ૧૨/૦૫/૨૦૨૨
૫.	ઉનાળુ વેકેશન		કોલેજ	તા. ૧૯/૦૫/૨૦૨૨ થી તા. ૧૪/૦૬/૨૦૨૨
			ડિપાર્ટમેન્ટ	તા. ૧૧/૦૫/૨૦૨૨ થી તા. ૧૪/૦૬/૨૦૨૨
૬.	શૈક્ષણિક વર્ષ ૨૦૨૨–૨૩ ના શૈક્ષણિક કાર્યની શરૂઆતનો પ્રથમ દિવસ			તા. ૧૫/૦૬/૨૦૨૨

<u>નોંધ</u> :– NCTE ના નિયમ મુજબ પ્રત્યેક સેમેસ્ટરમાં ૧૦૦ દિવસનું શૈક્ષણિક કાર્ય થવું જોઈએ તે બાબતને ધ્યાનમાં રાખવામાં આવી છે.

(એકેડેમિક વિભાગ)

૪૧. **ભગવાન મહાવીર કોલેજ ઓફ સાયન્સ એન્ડ ટેકનોલોજી,સુરતની M.Sc. Biotechnology (Integrated) અભ્યાસક્રમની શૈક્ષણિક વર્ષ ૨૦૨૧–૨૨ માટેના ચાલુ જોડાણની અરજી સંદર્ભમાં સિન્ડિકેટની તા.૨૨–૦૩–૨૦૨૧ની સભાના ઠરાવ ક્રમાંક (૦૯) અન્વયે માન.કુલપતિશ્રી નિયુકત સ્થાનિક તપાસ સમિતિ દ્વારા સિન્ડિકેટની તા.૨૭–૦૫–૨૦૨૧ની સભાના ઠરાવ ક્રમાંક (૧૩) અન્વયે ઓનલાઈન મોડથી તા.૩૧–૧૨–૨૦૨૧ ના રોજ LIC નું આયોજન કરી નીચેની શરતોનું પરિપાલન કરવાની શરતે શૈક્ષણિક વર્ષ ૨૦૨૧–૨૨ માટે M.Sc. Biotechnology (Integrated) અનુસ્નાતક સ્વનિર્ભર અભ્યાસક્રમનું <u>ત્રીજા અને ત્યારબાદના વર્ષનું ચાલુ જોડાણ મંજૂર</u> કરવા કરેલ ભલામણને અનુસ્નાતક શિક્ષણ મંડળની તા. ૨૭–૦૧–૨૦૨૨ની સભાના ઠરાવ ક્રમાંકઃ (૦૨) અન્વયે સ્થાનિક તપાસ સમિતીની નીચેની શરતોનું પરિપાલન કરવાની શરતે ચાલુ જોડાણ મંજૂર કરવા એકેડેમિક કાઉન્સિલને કરેલ ભલામણ પર વિચારણા કરવા બાબત....**

LICની શરતો : –

(૧) કાયમી આચાર્યની નિમણૂંક કરવી.

(૨) યુનિવર્સિટી ઓર્ડિનન્સ **69-A** અને**69-B** પાલન કરવું.

(૩) આસિસ્ટન્ટ પ્રોફેસરની નિમણૂક કરવી.

(૪) નવા પુસ્તકોની ખરીદી કરવી.

(૫) ફીઝીકલ ઈન્સ્ટ્રકટરની નિમણૂક કરવી.

LICની ભલામણ :–

અમો, નીચે મુજબના સમિતિના સભ્યોએ ઉપરોકત માહિતીની ચકાસણી કરી છે અને ઉપલબ્ધ આધારો મુજબ તે સાચી અને ખરી છે. ઉપરોકત માહિતી અને અવલોકનોના આધારે અમો સદર ડિગ્રી પ્રોગ્રામ માટે સંસ્થાની જોડાણની અરજી ગ્રાહય રાખી નીચેના સમયગાળા માટે ચાલુ જોડાણ આપવા ભલામણ કરીએ છીએ.

સમયગાળો :–૨૦૨૧–૨૦૨૨ (1 year)

<u>અનુસ્નાતક શિક્ષણ મંડળની તા. ૨૭–૦૧–૨૦૨૨ની સભાના ઠરાવ ક્રમાંકઃ(૦૨)</u>

:: આથી ઠરાવવામાં આવે છે કે, ભગવાન મહાવીર કોલેજ ઓફ સાયન્સ એન્ડ ટેકનોલોજી ,સુરતની M.Sc. Biotechnology (Integrated) અભ્યાસક્રમની શૈક્ષણિક વર્ષ ૨૦૨૧–૨૨ માટેના ચાલુ જોડાણની અરજી સંદર્ભમાં સ્થાનિક તપાસ સમિતિની નીચેની શરતોનું પરિપાલન કરવાની શરતે શૈક્ષણિક વર્ષ ૨૦૨૧–૨૨ માટે M.Sc. Biotechnology (Integrated) અભ્યાસક્રમનું ત્રીજા અને ત્યારબાદના વર્ષનું ચાલુ જોડાણ મંજૂર કરવા એકેડેમિક કાઉન્સિલને ભલામણ કરવામાં આવે છે.

<u>(બિડાણ–૨૭)</u>
<u>(જોડાણ વિભાગ)</u>

૪૨. Bachelor of Fine Arts વિષયનાં PO, PSO and CO બેચલર ઓફ ફાઈન આર્ટસ વિષયની નિયૂકત એડહોક બોર્ડનાં કન્વીનરશ્રીએ બોર્ડવતી અને વિનયન વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિનયન વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.

(બિડાણ.૨૮)
(સેનેટ/સિન્ડિકેટ વિભાગ)

૪૩. MCA, PG DCA, Ph.D. Course Workનાં PO, PSO and CO કોમ્પ્યુટર સાયન્સ વિષયની અભ્યાસ સમિતિની તા.૭/૧૦/૨૦૨૧ની સભાનાં ઠરાવ ક્રમાંકઃ ૫ અન્વયે કરેલ ભલામણ કોમ્પ્યુટર સાયન્સ એન્ડ ઈન્ર્ફોમેશન ટેકનોલોજી વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ કોમ્પ્યુટર સાયન્સ એન્ડ ઈન્ર્ફોમેશન ટેકનોલોજી વિદ્યાશાખા વતી મંજૂર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.

કોમ્પ્યુટર સાયન્સ વિષયની અભ્યાસ સમિતિની તા.૭/૧૦/૨૦૨૧ની સભાનાં ઠરાવ ક્રમાંકઃ ૫

:: **આથી ઠરાવવામાં આવે છે કે,** PG **પ્રોગ્રામના** PO, MCA **અને** PGDCA **ના** PSO **અને** MCA **અને** PGDCA **ના રજૂ થયેલ** CO **ને માન્ય રાખી મંજુર કરેલ છે. વધુમાં સભા ચેરમેનશ્રીને** Ph.D. **કોર્ષ વર્કના** PO, PSO **અને** CO **બનાવીને બોર્ડ ઓફ સ્ટડીઝ વતી મંજૂર કરવાની સત્તા આપવામાં આવે છે.**

(બિડાણ.૨૯)
(સેનેટ/સિન્ડિકેટ વિભાગ)

૪૪. મેનેજમેન્ટ વિદ્યાશાખાના ડીનશ્રીના તા. ૦૩/૦૨/૨૦૨૨ના ઈ–મેલ પર વિચારણા કરવા બાબત.

(બિડાણઃ ૩૦)
(અનુસ્નાતક વિભાગ)

૪૫. **દિવ્યાંગ વ્યકિતઓ માટેના નાયબ કમિશનરના તા.૨૭/૦૧/૨૦૨૨ ના પત્ર ક્રમાંકઃ કમિ/લીગલ/ ૨૦૨૧–૨૨/ ૭૭૮ પર વિચારણા કરવા બાબત.**

(બિડાણ.૩૧)
(એકેડેમિક વિભાગ)

૪૬. **કોમર્સ** ફેકલ્ટીના **કોમર્સ / એકાઉન્ટન્સી** વિષયમાં પીએચ.ડી. ના માર્ગદર્શક શિક્ષક તરીકેની માન્યતા મેળવવા પી.આર.બી.આર્ટસ એન્ડ પી.જી.આર. કોમર્સ કોલેજ,બારડોલી ના આસિ. પ્રોફેસર **ડૉ.મેહુલ મહેશભાઈ મિસ્ત્રી** ને પીએચ.ડી. ના માર્ગદર્શક શિક્ષક તરીકેની માન્યતા આપવા વિચારણા કરવા બાબત.

(૧)ડૉ.વી.એમ.વાનર,પ્રીન્સીપલ,આંણદ કોમર્સ કોલેજ,આંણદ, નો અહેવાલ હકારાત્મક છે.
(૨)ડૉ. એચ.સી.સરદાર,પ્રોફેસર, શેઠ દામોદરદાસ સ્કુલ ઓફ કોર્મસ, ગુજરાત યુનિવર્સિટી, અમદાવાદ, નો અહેવાલ હકારાત્મક છે.
(૩)માનનીય કુલપતિશ્રી એ BUT વતી અહેવાલોનો સ્વીકાર કરી AC ને ભલામણ કરેલ છે.

BUT ની તા.૯–૫–૨૦૧૨ ની સભાના ઠરાવ ક્રમાંક : ૧૧

- આથી ઠરાવવામાં આવે છે કે સાયન્સ ફેકલ્ટીનાં ઝૂલોજી વિષયમાં પીએચ.ડી.નાં માર્ગદર્શક શિક્ષક તરીકેની માન્યતા મેળવવા યુનિવર્સિટી કેમ્પસમાં ચાલતા એમ.એસ.સી.–બાયોટેકનોલોજી (સ્વનિર્ભર અભ્યાસક્રમ) ના વ્યાખ્યાતા ડૉ.પ્રીતી શર્માની અરજી સંદર્ભમાં સંશોધન પેપર્સનો અહેવાલ આપવા માટે મા.કુલપતિશ્રી દ્વારા નીમાયેલ બે નિર્ણાયકોના (ડૉ.અશોક કુમાર– યુનિવર્સિટી ઓફ રાજસ્થાન, જયપુર અને ડૉ. એમ.વી.રાવ– ગુજરાત યુનિવર્સિટી, અમદાવાદ) હકારાત્મક અહેવાલનો સ્વીકાર કરી માર્ગદર્શક શિક્ષકની માન્યતા આપવા એકેડેમિક કાઉન્સિલને ભલામણ કરવામાં આવે છે.

  વધુમાં ઠરાવવામાં આવે છે કે, હવે પછીથી તમામ કેસોમાં જો બંને રેફરીના અહેવાલો હકારાત્મક હોય તો મંજૂરીની સતા માનનીય કુલપતિશ્રીને આપવી અને બી.યુ.ટી.રજૂ કરવું નહી.

(અનુસ્નાતક વિભાગ)

૪૭. M.A. Gujarati **અને** Ph.D. Gujarati **તથા** Certificate Course **નાં** PO, PSO and CO **ગુજરાતી વિષયની અભ્યાસ સમિતિની તા.૦૪/૦૨/૨૦૨૨ની સભાનાં ઠરાવ ક્રમાંકઃ ૨ અન્વયે કરેલ ભલામણ વિનયન વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિયનય વિદ્યાશાખા વતી મંજૂર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.**

ગુજરાતી વિષયની અભ્યાસ સમિતિની તા.૦૪/૦૨/૨૦૨૨ની સભાનાં ઠરાવ ક્રમાંકઃ ૨

:: **આથી ઠરાવવામાં આવે છે કે,** M.A. Gujarati **અને** Ph.D. Gujarati **તથા** Certificate Course **ના** PO, PSO and CO **મંજુર કરી વિનયન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.**

(બિડાણ.૩૨)
(સેનેટ/સિન્ડિકેટ વિભાગ)

૪૮. Ph.D. Aquatic Biology વિષયનાં PO, PSO and CO એકવેટીક બાયોટેક વિષયની અભ્યાસ સમિતિનાં ચેરમેનશ્રીએ બોર્ડવતી અને વિજ્ઞાન વિદ્યાશાખાનાં ડીનશ્રીએ વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિજ્ઞાન વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરેલ છે, જે અંગે વિચારણા કરવા બાબત.

(બિડાણઃ૩૩)

(સેનેટ/સિન્ડિકેટ વિભાગ)

૪૯. B.Com. LL.B. (5 Year Integrated Programme) તથા LL.M.નાં વિવિધ કોર્ષનાં PO, PSO and CO કાનુન વિદ્યાશાખા તથા કાનૂન વિદ્યાશાખા અંતર્ગત ત્રણેય અભ્યાસસમિતિની સંયૂકત તા.૦૪/૦૨/૨૦૨૨ની સભાનાં ઠરાવ ક્રમાંકઃ૨ અન્વયે એકેડેમિક કાઉન્સિલને કરેલ ભલામણ પર વિચારણા કરવા બાબત.

<u>કાનૂન વિદ્યાશાખા તથા કાનૂન વિદ્યાશાખા અંતર્ગત ત્રણેય અભ્યાસસમિતિની સંયૂકત તા.૦૪/૦૨/૨૦૨૨ની સભાનાં ઠરાવ ક્રમાંકઃ૨</u>

:: આથી ઠરાવવામાં આવે છે કે, B.Com. LL.B. (5 Year Integrated Programme)નાં PO, PSO and CO મંજુર કરી એકેડેમિક કાઉન્સિલને ભલામણ કરવામાં આવે છે.

(બિડાણઃ૩૪)

(સેનેટ/સિન્ડિકેટ વિભાગ)

૫૦. યુનિવર્સિટી દ્વારા પાંચ વર્ષનો ઈન્ટીગ્રેટેડ M.Sc. (IT) અભ્યાસક્રમ વીથ option to exit ફ્રોમ third year મુજબનો અભ્યાસક્રમ ચાલી રહેલ છે. આ અભ્યાસક્રમની માંગને લઈને તથા બાબતને જોતાં નીચે મુજબના ત્રણ પ્રોગ્રામની બાબતે એક સર્વગ્રાહી નીતિ યુનિવર્સિટી દ્વારા બનાવવા ડો. સ્નેહલ જોષીના તા.૪–૨–૨૦૨૨ ના ઈ–મેઈલથી મળેલ રજૂઆત પરત્વે વિચારણા કરવા બાબત.

(૧) પાંચ વર્ષનો ઈન્ટીગ્રેટેડ M.Sc. (IT) પ્રોગ્રામ

(૨) બે વર્ષનો માત્ર અનુસ્નાતક કક્ષાનો M.Sc. (IT) પ્રોગ્રામ

(૩) ત્રણ વર્ષનો સ્નાતક કક્ષાનો B.Sc. (IT) પ્રોગ્રામ

(સેનેટ/સિન્ડિકેટ વિભાગ)

૫૧. વિદ્યાભારતી ટ્રસ્ટ કોલેજ ઓફ બિઝનેશ, કોમ્પ્યુટર સાયન્સ એન્ડ રિસર્ચ, વિદ્યાભારતી ઉમરાખ, મું પો. બાબેન,તા.બારડોલી જિ.સુરત ખાતે તા.૦૭/૦૧/૨૦૨૨ના પત્રક્રમાંકઃ TCBCSR/Interview/ BCA/2021/2022/331 થી નીચે મુજબના મલ્ટી ડીસીપ્લીનરી સર્ટીફીકેટ/ડીપ્લોમાં કોર્ષ શરૂ કરવા યુનિવર્સિટીના તા.૦૧/૦૧/૨૦૨૨ ના પરિપત્ર ક્રમાંક : એસ./સર્ટી.કોર્ષ/પરિપત્ર/૬૬/૨૦૨૨અન્વયે SOPમુજબ મંજુરી આપવા વિચારણા કરવા બાબત.

1. Data Handling With R
2. Data Visualization With R
3. Web Designing & Publishing with WordPress-II
4. Web Designing & Publishing with WordPress-II
5. Introduction to Search Engine Optimization-1
6. Introduction to SEO and Marketing Tools.

(બિડાણઃ ૩૫)

(સેનેટ/સિન્ડિકેટ વિભાગ)

૫૨. <u>લો</u> ફેકલ્ટીના <u>લો</u> વિષયમાં પીએચ.ડી. ના માર્ગદર્શક શિક્ષક તરીકેની માન્યતા મેળવવા કાનૂન વિભાગ,વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી ના કો–ઓર્ડિનેટર ડા.**વિમલ અનંતરાય પંડયા** ને પીએચ.ડી. ના માર્ગદર્શક શિક્ષક તરીકેની માન્યતા આપવા વિચારણા કરવા બાબત.

(૧)ડા.પ્રકાશકુમાર ડી. ડોબરીયા ,વી.ડી.ગરદી લો કોલેજ,સુરેન્દ્રનગર નો અહેવાલ હકારાત્મક છે.

(૨)ડા.આનંદ પાલીવાલા,ડીન એન્ડ ચેરમેનલફેકલ્ટી ઓફ લો, મોહનલાલ સુખડીયા યુનિવર્સિટી, ઉદયપુરનો અહેવાલ હકારાત્મક છે.

(૩)માનનીય કુલપતિશ્રી એ BUT વતી અહેવાલોનો સ્વીકાર કરી AC ને ભલામણ કરેલ છે.

<u>BUT ની તા.૯–૫–૨૦૧૨ ની સભાના ઠરાવ ક્રમાંક : ૧૧</u>

- આથી ઠરાવવામાં આવે છે કે સાયન્સ ફેકલ્ટીનાં ઝૂલોજી વિષયમાં પીએચ.ડી.નાં માર્ગદર્શક શિક્ષક તરીકેની માન્યતા મેળવવા યુનિવર્સિટી કેમ્પસમાં ચાલતા એમ.એસ.સી.–બાયોટેકનોલોજી (સ્વનિર્ભર અભ્યાસક્રમ) ના વ્યાખ્યાતા ડા.પ્રીતી શર્માની અરજી સંદર્ભમાં સંશોધન પેપર્સનો અહેવાલ આપવા માટે મા.કુલપતિશ્રી દ્વારા નીમાયેલ બે નિર્ણાયકોના (ડા.અશોક કુમાર– યુનિવર્સિટી ઓફ રાજસ્થાન, જયપુર અને ડા. એમ.વી.રાવ– ગુજરાત યુનિવર્સિટી, અમદાવાદ) હકારાત્મક અહેવાલનો સ્વીકાર કરી માર્ગદર્શક શિક્ષકની માન્યતા આપવા એકેડેમિક કાઉન્સિલને ભલામણ કરવામાં આવે છે.

  વધુમાં ઠરાવવામાં આવે છે કે, હવે પછીથી તમામ કેસોમાં જો બંને રેફરીના અહેવાલો હકારાત્મક હોય તો મંજૂરીની સતા માનનીય કુલપતિશ્રીને આપવી અને બી.યુ.ટી.રજૂ કરવું નહી.

(અનુસ્નાતક વિભાગ)

૫૩. અધ્યક્ષશ્રીની મંજૂરીથી જે બાબત રજૂ થાય તે.

ક્રમાંક : એસ./એ.કા./કા.સૂ./૧૯૮૦/૨૦૨૨
તા. ૦૪/૦૨/૨૦૨૨

ઈ.ચા.કુલસચિવ

પ્રતિ,
એકેડેમિક કાઉન્સિલના સર્વે સભ્યશ્રીઓ....

એકેડમિક કાઉન્સિલ તા.05/02/2022
બાબત.....22.....ઠરાવ/પરિશિષ્ટ.....13.....

Proposed Syllabus

M. Sc. Bioscience (Zoology)

Semester I & II

CHOICE BASED CREDIT SYSTEM (CBCS)

w.e.f. June 2019

Department of Biosciences
Veer Narmad South Gujarat University, Surat

M.Sc. Bioscience (Zoology)

Programme Outcome (PO)

- **PO 1: Think Critically:** Get ability to apply the process of science by formulating hypotheses and design experiments based on the scientific method.
- **PO 2: Problem analysis:** Analyse and interpret results generated through studies in Master of Science, taxonomical treatments, field studies, excursion tours and laboratory techniques used in the subject. Identify credible scientific sources to interpret and evaluate the evidences.
- **PO 3: Reasoning ability:** Use quantitative reasoning by using mathematical calculations and graphing skills to solve problems in the field of science.
- **PO 4: Team work:** Students would perform functions that demand higher competence in national/international organizations with sporty spirits and helping each other.
- **PO 5: Communication Skill:** Effective Communication and collaborate with other disciplines by effectively communicating the fundamental concepts of Biological Science in written and oral format.
- **PO 6: Ethical awareness:** Understand the relationship between science and society by recognizing and discussing logical, scientific and ethical issues in Biological science subject.
- **PO 7: Environment and Sustainability:** Understand the issues of environmental contexts and sustainable development with respect to assessment, conservation and utilization of floral diversity
- **PO 8: Digitally literate:** Capable of using computers for Bioinformatics and computation
  and appropriate software for analysis of genomics and proteomics data, and employing modern bioinformatics search tools to locate, retrieve, and evaluate location and biological annotation genes of different species.
- **PO 9: Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio- technological changes
- **PO 10: Global thinking:** Knowledgeable disciple students with good values, ethics, and kind heart will help in nation building globally.

Programme Specific Outcome (PSOs)

- **PSO 1:**develop conceptual understanding of basic biology and applied aspects of microbiology
- **PSO 2:** learn about practical aspects of basic biology and microbiology
- **PSO 3:** They would identify, formulate and analyse the complex problems with reaching a substantiated conclusion. Logical thinking with application of biological, physical and chemical sciences. Learning that develops analytical and integrative problem-solving approaches.

- **PSO 4:** Students would perform functions that demand higher competence in national/international organizations with sporty and helping spirits. Prepare the students for many competitive exams like MPSC, UPSC NET SET GATE.

- **PSO5:** Best problem-solving skills in students would encourage them to carry out innovative research projects thereby making them to use knowledge creation in depth.
- **PSO6:** Knowledgeable, disciplined students with good values, ethics, and kind heart will help in nation building globally. Student should be aware of ethical issues and regulatory considerations while addressing society needs for growth with honesty

	PS01	PSO2	PSO3	PSO4	PSO5	PSO6
PO1		■	■			
PO2					■	
PO3	■	■	■			
PO4		■				
PO5		■				
PO6						■
PO7						■
PO8		■				
PO9				■		
PO10						■

M. Sc. Bioscience Sem. I

Subject Code	Subject Title	Theory Hours/ week	Practical Hours/week	External Marks	Internal Marks	Total Marks	Credit
Bios-101	Biochemistry	4	-	70	30	100	4
Bios-102	Cell Biology and Immunology	4	-	70	30	100	4
Bios-103	Instrumentations and Biostatistics	4	-	70	30	100	4
Bios-104	Fundamentals of Developmental Biology and Physiology	4	-	70	30	100	4
Bios- 105	Practical Based on Bios-101 to 104	-	16	140	60	200	8
Total		**16**	**16**	**420**	**180**	**600**	**24**

M. Sc. Bioscience Sem. II

Subject Code	Subject Title	Theory Hours/ week	Practical Hours/week	External Marks	Internal Marks	Total Marks	Credit
Bios-201	Evolution and Genetics	4	-	70	30	100	4
Bios-202	Molecular Biology and Recombinant DNA methods	4	-	70	30	100	4
Bios-203	Diversity and ecology	4	-	70	30	100	4
Bios-204	Bioinformatics, IPR, Biosafety & Bioethics	4	-	70	30	100	4
Bios- 205	Practical Based on Bios-201 to 204	-	16	140	60	200	8
Total		**16**	**16**	**420**	**180**	**600**	**24**

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-101	Semester	I
Biochemistry			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-101: BIOCHEMISTRY

Learning Objective and Outcomes:

This Course will focuses on the synthesis, structure and functions of biomolecules in the living organisms. After learning this unit the students will be able to

- **CO 1** Student will be able to understand the process of synthesis of proteins, lipids, nucleic acids, and carbohydrates and their role in metabolic pathways along with their regulation at the epigenetic, transcriptional, translational, and post-translational levels including RNA and protein folding, modification, and degradation.
- **CO 2** Students will be able to explain reaction kinetics, thermodynamics of the molecules. They will be able to understand principles of catalysis and enzyme kinetics.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-102	Semester	I
Cell Biology and Immunology			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-102: CELL BIOLOGY AND IMMUNOLOGY

Learning Objective and Outcomes:

The course mainly emphasize on study of ultra-structure of various cell types, cell division and its regulation. The course also deals with molecules involve in immune system and their role in immune system. After learning this course students will be able to understand…

- **CO 1** Basic structure and chemical properties of plant, animal and bacterial cells
- **CO 2** Phases, mechanism and regulation of cell cycle, cell signaling pathways and cancer biology
- **CO 3** Students will be also able to explain molecules involved in innate and adaptive immunity and response of immune system in various pathogenic condition

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-103	Semester	I
Instrumentations and Biostatistics			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-103: INSTRUMENTATIONS AND BIOSTATISTICS

***Learning Objective and Outcomes*:**

The course is designed to develop the experimental techniques and bio statistical skill for student. At the end of this course the students will be able to explain the principle, construction and working of various analytical instruments. Students will get detailed information about the applications of analytical techniques in Biological sciences. They will be able to

- **CO 1** Understand and use various qualitative and quantitative techniques i.e. microscopic, spectroscopic, chromatographic, etc.
- **CO 2** They will be able to explain various histochemical and immunotechniques for the detection of molecules in living cells. They will learn detection and measurements of different types of radioisotopes as well as electrophysiological methods
- **CO 3** Students will be able to analyse the biological data by manual and computational methods

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-104	Semester	I
Fundamentals of Developmental Biology and Physiology			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-104: FUNDAMENTALS OF DEVELOPMENTAL BIOLOGY AND PHYSIOLOGY

Learning Objective and Outcomes:

The course has created to exposed student with the fundamental of developmental biology and physiology of the different life forms. The course explores various topics in plant physiology, and biochemistry including primary and secondary metabolism, photosynthesis, respiration, water relations, mineral nutrition, response to environmental stress, roles of plant hormones. After completing this course,

- **CO 1** Students will be able to explain important developmental aspects in plants and animal.
- **CO 2** The students will understand the relationship between structure, function and its relation to various biological processes.
- **CO 3** Student will gain an appreciation of the metabolic and physiological processes for stress adaptation

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-105	Semester	I
Practical Based on BIOS-101 to 104			
Course type	Practical	Total Credit	08
Teaching time	Examination Marking Scheme		
Practical (hrs)	Internal Marks	External Marks	Total Marks
16/week	60	140	200

The Course mainly emphasize on practical skill cell biology, biochemistry, Instrumentation, environmental sample analysis.

- **CO 1** Ability to apply basic principles of chemistry to biological systems and molecular biology.
- **CO 2** Ability to relate various interrelated physiological and metabolic events.
- **CO 3** A general awareness of current developments at the forefront in biochemistry and allied subjects.
- **CO 4** Ability to critically evaluate a problem and resolve to challenge blindly accepted concepts.
- **CO 5** Zeal and ability to work safely and effectively in a laboratory.
- **CO 6** Good experimental and quantitative skills encompassing preparation of laboratory
- **CO 7** Reagents, conducting experiments, satisfactory analyses of data and interpretation of results.
- **CO 8** Awareness of resources, and their conservation.
- **CO 9** Ability to think laterally and in an integrating manner and develop interdisciplinary approach.
- **CO 10** Overall knowledge of the avenues for research and higher academic achievements in the field of botany and allied subjects.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						
CO6						
CO7						
CO8						
CO9						
CO10						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-201	Semester	II
Evolution and Genetics			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-201: EVOLUTION AND GENETICS

Learning Objective and Outcomes:

The course concentrate on understanding of origin, evolutionary mechanism and genetics aspects of life. The aim of the course is to provide students with a deeper insight into the evolutionary processes. On completion of the course the students will be able to

- **CO 1** Describe the origin, evolutionary mechanism of life forms.
- **CO 2** Student will be correlate the evolution processes with behavior biology, palaeontology and molecular biology.
- **CO 3** Student will be explain the traditional to modern aspects with practical application in genetics.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■		■		■	
CO2	■		■		■	
CO3	■	■			■	

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-202	Semester	II
Molecular Biology and Recombinant DNA Methods			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-202: MOLECULAR BIOLOGY AND RECOMBINANT DNA METHODS

Learning Objective and Outcomes:

The subject offers the in-depth knowledge of the concepts, tools, techniques and process related to Molecular biology and recombinant DNA technology with respect to prokaryotic and eukaryotic cell

- **CO 1** Student will able to understand central dogma of life and compare the molecular biological processes among prokaryotic and eukaryotic cell.
- **CO 2** Student will able to describe and apply the recombinant DNA technology
- **CO 3** Student will able to explain the quantification, decoding, cloning and modification of gene and genome

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■				■	
CO2	■				■	
CO3		■	■		■	

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-203	Semester	II
Diversity and Ecology			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-203: DIVERSITY AND ECOLOGY

Learning Objective and Outcomes:

The course provides the Biodiversity concept and details information of ecology, taxonomy and natural history of Indian subcontinent. The subject elicit the interest of student regarding the nature conservation, natural biodiversity and environmental legislation of India

- **CO 1** Student shall get the information of natural flora, fauna of the world and India with current status of the population dynamics, the human intervention on ecosystem and community.
- **CO 2** Student will get the fundamental knowledge about the applied ecology and its application in conservation biology and sustainable development.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-204	Semester	II
Bioinformatics, IPR, Biosafety & Bioethics			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-204: BIOINFORMATICS, IPR, BIOSAFETY & BIOETHICS

Learning Objective and Outcomes:

The most valuable knowledge need to learn the student is the moral values and ethics along with the gaining of the knowledge of the interdisciplinary subject. The course provide the information and knowledge of the IPR, Biosafety and B

- **CO 1**Student will be utilized the available biological database, online resources and tools.
- **CO 2** Student will be able to understand and perform the bimolecular structure visualization, sequences alignment, modelling and drug discovery
- **CO 3** Student will be able to understand the regulation and importance of IPR and patent along with the ethical concern
- **CO 4** Student will be able to understand the Biosafety requirement and practice it during his/her practical and research work

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-205	Semester	II
Practical Based on BIOS-201 to 204			
Course type	Practical	Total Credit	08
Teaching time	Examination Marking Scheme		
Practical (hrs)	Internal Marks	External Marks	Total Marks
16/week	60	140	200

The Course mainly emphasize on practical skill cell biology, biochemistry, Instrumentation, environmental sample analysis.

- **CO 1**Ability to apply basic principles of chemistry to biological systems and molecular biology.
- **CO 2** Ability to relate various interrelated physiological and metabolic events.
- **CO 3** A general awareness of current developments at the forefront in biochemistry and allied subjects.
- **CO 4** Ability to critically evaluate a problem and resolve to challenge blindly accepted concepts.
- **CO 5** Zeal and ability to work safely and effectively in a laboratory.
- **CO 6** Good experimental and quantitative skills encompassing preparation of laboratory
- **CO 7** Reagents, conducting experiments, satisfactory analyses of data and interpretation of results.
- **CO 8** Awareness of resources, and their conservation.
- **CO 9** Ability to think laterally and in an integrating manner and develop interdisciplinary approach.
- **CO 10** Overall knowledge of the avenues for research and higher academic achievements in the field of biochemistry and allied subjects.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						
CO6						
CO7						
CO8						
CO9						
CO10						

Syllabus

M. Sc. Bioscience (Zoology)

Sem. III and IV

CHOICE BASED CREDIT SYSTEM (CBCS)

w.e.f. June 2020

Department of Biosciences
Veer Narmad South Gujarat University, Surat

M. Sc. Bioscience (Zoology) Semester- III							
Subject Code	Subject Title	Theory Hours/ week	Practical Hours/week	External Marks	Internal Marks	Total Marks	Credit
Bios-(Z)-301	Structure and Function in Invertebrates and Vertebrates	4	-	70	30	100	4
Bios-(Z)-302	Histology and Histochemistry	4	-	70	30	100	4
Bios-(Z)-303	Animal Taxonomy, Wildlife and Conservation	4	-	70	30	100	4
Bios-(Z)-304	Animal Biotechnology	4	-	70	30	100	4
Bios-(Z)-305	Practical Based on Bios-(Z)-301 to 304	-	16	140	60	200	8
Total		**16**	**16**	**420**	**180**	**600**	**24**

M. Sc. Bioscience (Zoology) Semester- IV							
Subject Code	Subject Title	Theory Hours/ week	Practical Hours/week	External Marks	Internal Marks	Total Marks	Credit
Bios-(Z)-401	Applied Reproductive Biology	4	-	70	30	100	4
Bios-(Z)-402	Applied Zoology	4	-	70	30	100	4
Bios-(Z)-403	Research Methodology	4	-	70	30	100	4
Bios-(Z)-404	Dissertation/ Training	-	12	105	45	150	6
Bios-(Z)-405	Practical Based on Bios-(Z)-401 to 403	-	12	105	45	150	6
Total		**12**	**24**	**420**	**180**	**600**	**24**

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-(Z)-301	Semester	III (Zoology)
Structure and Function in Invertebrates and Vertebrates			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-(Z)-301 Structure and Function in Invertebrates and Vertebrates

Learning Objective and Course Outcomes:

The Course mainly emphasize on study of various vertebrate and invertebrate animal phyla. It will enrich the knowledge about various mode of nutrition respiration, excretion, reproduction in various animal phyla.

- **CO 1** Understand the structure and organization of invertebrate and vertebrate animals.
- **CO 2** Explain modifications in various functions of animals during transition from invertebrates to vertebrates.
- **CO 3** Discuss the significance of various modifications in the body systems according to environment.
- **CO 4** Discuss the various mode of respiration, excretion, reproduction in invertebrates and vertebrates.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		**Programme Name**	**M.Sc. Bioscience**
Course Code	**BIOS-(Z)-302**	**Semester**	**III (Zoology)**
Histology and Histochemistry			
Course type	**Core Compulsory**	**Total Credit**	**04**
Teaching time	**Examination Marking Scheme**		
Theory (hrs)	**Internal Marks**	**External Marks**	**Total Marks**
4/week	**30**	**70 (Paper of 3hrs)**	**100**

BIOS-(Z)-302 Histology and Histochemistry

Learning Objective and Course Outcomes:

The course is designed to develop experimental techniques in histology and histochemistry. At the end of this course students will be able to process the various animal tissue to localise biological components as well to evaluate the pathological aspects of the tissue. Students will be able to explain principles and various analytical aspect of the techniques.

- **CO 1** Knowledge of basic terms in histology.
- **CO 2** The student will be able to understand all four types of tissues.
- **CO 3** Identify the histological structure and function of various organs.
- **CO 4** Explain the location, structure and functions of various organs.
- **CO 5** Illustrate the histology of endocrine glands.
- **CO 6** Diagrammatically represent the various organs.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■					
CO2	■					
CO3		■				
CO4					■	
CO5		■			■	
CO6			■		■	

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		**Programme Name**	**M.Sc. Bioscience**
Course Code	**BIOS-(Z)-303**	**Semester**	**III (Zoology)**
Animal Taxonomy, Wildlife and Conservation			
Course type	**Core Compulsory**	**Total Credit**	**04**
Teaching time	**Examination Marking Scheme**		
Theory (hrs)	**Internal Marks**	**External Marks**	**Total Marks**
4/week	**30**	**70 (Paper of 3hrs)**	**100**

BIOS-(Z)-303 Animal Taxonomy, Wildlife and Conservation

Learning Objective and Course Outcomes:

This paper is aimed to introducing the students for the salient features of Taxonomy and Evolution.

- **CO 1** Classify animals on the basis of their relation to other animals by body structure, external characters, development and DNA
- **CO 2** Identify diversity of fauna on earth and implement conservation measures to save diversity
- **CO 3** Understand importance of wildlife and conservation measures, National parks and Sanctuaries.
- **CO 4** Will gain knowledge about wildlife crime, laws and other issues related with wildlife trading.
- **CO 5** Will learn about various techniques for the management of wildlife.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■					
CO2		■				
CO3			■		■	■
CO4						■
CO5						■

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-(Z)-304	Semester	III (Zoology)
Animal Biotechnology			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-(Z)-304 Animal Biotechnology

Learning Objective and Course Outcomes:

The paper is aimed to introduce the students to different types in Animal Cell Culture and its importance and application.

Will understand principles of animal culture, media preparation.

- **CO 1** Will be able to understand the techniques of cryopreservation.
- **CO 2** Will be able to understand the various aspects of animal cell culture like lab design, media preparation, good laboratory practises,
- **CO 3** It gives insight into various cell/tissues culture techniques
- **CO 4** Understanding of in vitro culturing of organisms and production of transgenic animals.
- **CO 5** Understanding of cloning of mammals, large scale culture and production from recombinant microorganisms
- **CO 6** Gains skills in medical, environmental biotechnology, biopesticides, Biotechnology of aquaculture and use of animals as bioreactors
- **CO 7** This insight allows students to take into consideration about ethical issues involved in production transgenic animals and BT products.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■					
CO2	■	■				
CO3		■				
CO4		■				
CO5	■					
CO6		■	■	■	■	
CO7						■

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-(Z)-305	Semester	I
Practical Based on BIOS-(Z)-301 to 304			
Course type	Practical	Total Credit	08
Teaching time	Examination Marking Scheme		
Practical (hrs)	Internal Marks	External Marks	Total Marks
16/week	60	140	200

BIOS-(Z)-305- Practicals based on topics covered in Bios 301 to 304

Learning Objective and Course Outcomes:

The Course mainly emphasize on practical skill cell biology, biochemistry, Instrumentation, environmental sample analysis.

- **CO 1** Ability to apply basic principles of biological systems and molecular biology.
- **CO 2** Ability to relate various interrelated physiological and metabolic events through metagenomic analysis
- **CO 3** A general awareness of current developments at the forefront in application of biotechnology in fisheries.
- **CO 4** Ability to critically evaluate a problem and resolve to challenge blindly accepted concepts.
- **CO 5** Zeal and ability to work safely and effectively in a laboratory as well as field.
- **CO 6** Good experimental and quantitative skills encompassing behavioural science of animals.
- **CO 7** Awareness of resources, and their conservation.
- **CO 8** Ability to think laterally and in an integrating manner and develop interdisciplinary Research approach in zoology and allied subjects.
- **CO 9** Overall knowledge of the avenues for research and higher academic achievements in the field of bioscience.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							
CO6							
CO7							
CO8							
CO9							

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-(Z)-401	Semester	III (Zoology)
Applied Reproductive biology			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-(Z)-401 Applied Reproductive biology

Learning Objective and Course Outcomes:

- **CO 1** In this course, students will investigate the biological processes of reproduction, including the endocrinology and physiology of male and female reproduction, puberty, lactation and menopause. They will gain an understanding of the determinants of fertility and infertility, and how reproductive biotechnology is used to overcome poor fertility.
- **CO 2** This course will also include a focus on the biology of normal and disordered pregnancy.
- **CO 3** Students will explore how reproductive biology impacts other aspects of health, exploring implications of early life exposures for later health and of the biology of reproductive cancers. Social and ethical implications of reproductive technologies and research will be discussed within appropriate topics.
- **CO 4** Students will have opportunities to hear from scientists and practitioners with relevant expertise. Active learning will be encouraged, for example, through guided reading and group exercises. Students will enhance skills in analysis of literature and in creating a coherent written account of a body of work.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■		■			
CO2	■					
CO3		■	■		■	■
CO4		■		■		

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-(Z)-402	Semester	III (Zoology)
Applied Zoology			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS- (Z)-402 Applied Zoology

Learning Objective and Course Outcomes:

- **CO 1** Students will gain learn applications of Zoology in Agriculture and other industries.
- **CO 2** Identify various methodology and perspectives of applied branches of zoology for the possibilities of self-employment.
- **CO 3** Learn the basic principles involved in the culture and breeding of common edible and ornamental fishes
- **CO 4** Get a basic understanding of human genomics and reproductive biology
- **CO 5** Aware about stem cell research and prenatal diagnostic techniques.
- **CO 6** Course will provides them comprehensive understanding about aquatic ecosystem and various economical important fishes.
- **CO 7** Students will gain knowledge in the areas of responses characterization and classification of Ostracoderms, placoderms, acanthodians, holocephali, elasmobranchs.
- **CO 8** Students will get information about zooplanktons, rotifers and other microscopic organisms

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	■						
CO2		■		■			
CO3		■					
CO4	■						■
CO5		■				■	
CO6			■		■	■	
CO7	■						
CO8		■					

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-(Z)-403	Semester	IV
RESEARCH METHODOLOGY AND PROFESSIONAL SKILLS			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-(Z)-403-RESEARCH METHODOLOGY AND PROFESSIONAL SKILL

Learning Objective and Outcomes:

The course is design to train student for research activity and communication skill at the end of the course student will be

- **CO 1** Able to understand the research problem and design and research work
- **CO 2** Able to write, prepare poster and present oral presentation
- **CO 3** Able to prepare CV and face the interview

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	■					■	
CO2		■				■	
CO3		■		■			

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience (Botany)
Course Code	BIOS (Z)-404	Semester	IV
Dissertation/Training			
Course type	Core Compulsory	Total Credit	06
Teaching time	Examination Marking Scheme		
Practical / Lab (hrs)	Internal Marks	External Marks	Total Marks
12/week	45	105 (Paper of 3hrs)	150

BIOS-(Z)-404: DISSERTATION/ TRAINING

The course provides wide knowledge about research, experimental & sampling design,

- **CO 1** Data collection, analysis & interpretation of data and allows student to present the research data in scientific method
- **CO 2** Gains skill to solve problems using appropriate research method and inferential statistical tools
- **CO 3** Learns to collect literature collection, literature citation, and components of research report – Text, tables, figures, and bibliography.
- **CO 4** Critically analyse and evaluate the knowledge and understanding in relation to the agreed area of study.
- **CO 5** Integrate theory and practice.
- **CO 6** Develop responses on the basis of the evaluation and analysis undertake.
- **CO 7** Writing of dissertations, project proposals, project reports, research papers.
- **CO 8** Intellectual Property Rights – Biopiracy, copyrights, patent and traditional knowledge and plagiarism.
- **CO 9** Demonstrate advanced critical research skills in relation to career development or work-related learning studies.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							
CO6							
CO7							
CO8							
CO9							

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		**Programme Name**	**M.Sc. Bioscience**
Course Code	**BIOS-(Z)-405**	**Semester**	**III (Zoology)**
Practical Based on Bios-(Z)-401 to 403			
Course type	**Core Compulsory**	**Total Credit**	**06**
Teaching time	**Examination Marking Scheme**		
Theory (hrs)	**Internal Marks**	**External Marks**	**Total Marks**
4/week	**45**	**105**	**150**

BIOS-(Z)-405-Practicals based on topics covered in Bios-(Z)-401 to 403

The course is developed to cultivate practical expertise in the students in the field of advance reproductive techniques and applied zoology. After completion of the course the students:

- **CO 1** Will be able to apply advance techniques in the various field of applied zoology.
- **CO 2** Students will be able to use various advanced biotechnological methods in the field of aquaculture and fisheries.
- **CO 3** Students will be able to isolate the metagenome of the various plants and animals and will be able to understand their coexistence and significance to the environment as well as the flora and fauna.
- **CO 4** Students will be able to use various software to evaluate their scientific data and will be able to their thesis, articles and reviews scientific manner.
- **CO 5** Will be able to search the articles, journals, patents on various databases

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							

Proposed Syllabus

M. Sc. Bioscience (Botany)

Semester I & II

CHOICE BASED CREDIT SYSTEM (CBCS)

w.e.f. June 2019

Department of Biosciences
Veer Narmad South Gujarat University, Surat

M.Sc. Bioscience (Botany)

Programme Outcome (PO)

- **PO 1: Think Critically:** Get ability to apply the process of science by formulating hypotheses and design experiments based on the scientific method.
- **PO 2: Problem analysis:** Analyse and interpret results generated through studies in Master of Science, taxonomical treatments, field studies, excursion tours and laboratory techniques used in the subject. Identify credible scientific sources to interpret and evaluate the evidences.
- **PO 3: Reasoning ability:** Use quantitative reasoning by using mathematical calculations and graphing skills to solve problems in the field of science.
- **PO 4: Team work:** Students would perform functions that demand higher competence in national/international organizations with sporty spirits and helping each other.
- **PO 5: Communication Skill:** Effective Communication and collaborate with other disciplines by effectively communicating the fundamental concepts of Biological Science in written and oral format.
- **PO 6: Ethical awareness:** Understand the relationship between science and society by recognizing and discussing logical, scientific and ethical issues in Biological science subject.
- **PO 7: Environment and Sustainability:** Understand the issues of environmental contexts and sustainable development with respect to assessment, conservation and utilization of floral diversity
- **PO 8: Digitally literate:** Capable of using computers for Bioinformatics and computation
  and appropriate software for analysis of genomics and proteomics data, and employing modern bioinformatics search tools to locate, retrieve, and evaluate location and biological annotation genes of different species.
- **PO 9: Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio- technological changes
- **PO 10: Global thinking:** Knowledgeable disciple students with good values, ethics, and kind heart will help in nation building globally.

Programme Specific Outcome (PSOs)

- **PSO 1:**develop conceptual understanding of basic biology and applied aspects of microbiology
- **PSO 2:** learn about practical aspects of basic biology and microbiology
- **PSO 3:** They would identify, formulate and analyse the complex problems with reaching a substantiated conclusion. Logical thinking with application of biological, physical and chemical sciences. Learning that develops analytical and integrative problem-solving approaches.

- **PSO 4:** Students would perform functions that demand higher competence in national/international organizations with sporty and helping spirits. Prepare the students for many competitive exams like MPSC, UPSC NET SET GATE.

- **PSO5:** Best problem-solving skills in students would encourage them to carry out innovative research projects thereby making them to use knowledge creation in depth.
- **PSO6:** Knowledgeable, disciplined students with good values, ethics, and kind heart will help in nation building globally. Student should be aware of ethical issues and regulatory considerations while addressing society needs for growth with honesty

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
PO1		■	■			
PO2					■	
PO3	■	■	■			
PO4		■				
PO5		■				
PO6						■
PO7						■
PO8		■				
PO9				■		
PO10						■

M. Sc. Bioscience Sem. I							
Subject Code	Subject Title	Theory Hours/ week	Practical Hours/week	External Marks	Internal Marks	Total Marks	Credit
Bios-101	Biochemistry	4	-	70	30	100	4
Bios-102	Cell Biology and Immunology	4	-	70	30	100	4
Bios-103	Instrumentations and Biostatistics	4	-	70	30	100	4
Bios-104	Fundamentals of Developmental Biology and Physiology	4	-	70	30	100	4
Bios- 105	Practical Based on Bios-101 to 104	-	16	140	60	200	8
Total		**16**	**16**	**420**	**180**	**600**	**24**

M. Sc. Bioscience Sem. II							
Subject Code	Subject Title	Theory Hours/ week	Practical Hours/week	External Marks	Internal Marks	Total Marks	Credit
Bios-201	Evolution and Genetics	4	-	70	30	100	4
Bios-202	Molecular Biology and Recombinant DNA methods	4	-	70	30	100	4
Bios-203	Diversity and ecology	4	-	70	30	100	4
Bios-204	Bioinformatics, IPR, Biosafety & Bioethics	4	-	70	30	100	4
Bios- 205	Practical Based on Bios-201 to 204	-	16	140	60	200	8
Total		**16**	**16**	**420**	**180**	**600**	**24**

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-101	Semester	I
Biochemistry			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-101: BIOCHEMISTRY

Learning Objective and Outcomes:

This Course will focuses on the synthesis, structure and functions of biomolecules in the living organisms. After learning this unit the students will be able to

- **CO 1** Student will be able to understand the process of synthesis of proteins, lipids, nucleic acids, and carbohydrates and their role in metabolic pathways along with their regulation at the epigenetic, transcriptional, translational, and post-translational levels including RNA and protein folding, modification, and degradation.
- **CO 2** Students will be able to explain reaction kinetics, thermodynamics of the molecules. They will be able to understand principles of catalysis and enzyme kinetics.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■		■		■	
CO2	■	■		■	■	

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-102	Semester	I
Cell Biology and Immunology			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-102: CELL BIOLOGY AND IMMUNOLOGY

Learning Objective and Outcomes:

The course mainly emphasize on study of ultra-structure of various cell types, cell division and its regulation. The course also deals with molecules involve in immune system and their role in immune system. After learning this course students will be able to understand…

- **CO 1** Basic structure and chemical properties of plant, animal and bacterial cells
- **CO 2** Phases, mechanism and regulation of cell cycle, cell signaling pathways and cancer biology
- **CO 3** Students will be also able to explain molecules involved in innate and adaptive immunity and response of immune system in various pathogenic condition

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■		■		■	
CO2	■		■		■	
CO3	■		■		■	

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-103	Semester	I
Instrumentations and Biostatistics			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-103: INSTRUMENTATIONS AND BIOSTATISTICS

***Learning Objective and Outcomes*:**

The course is designed to develop the experimental techniques and bio statistical skill for student. At the end of this course the students will be able to explain the principle, construction and working of various analytical instruments. Students will get detailed information about the applications of analytical techniques in Biological sciences. They will be able to

- **CO 1** Understand and use various qualitative and quantitative techniques i.e. microscopic, spectroscopic, chromatographic, etc.
- **CO 2** They will be able to explain various histochemical and immunotechniques for the detection of molecules in living cells. They will learn detection and measurements of different types of radioisotopes as well as electrophysiological methods
- **CO 3** Students will be able to analyse the biological data by manual and computational methods

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-104	Semester	I
Fundamentals of Developmental Biology and Physiology			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-104: FUNDAMENTALS OF DEVELOPMENTAL BIOLOGY AND PHYSIOLOGY

Learning Objective and Outcomes:

The course has created to exposed student with the fundamental of developmental biology and physiology of the different life forms. The course explores various topics in plant physiology, and biochemistry including primary and secondary metabolism, photosynthesis, respiration, water relations, mineral nutrition, response to environmental stress, roles of plant hormones. After completing this course,

- **CO 1** Students will be able to explain important developmental aspects in plants and animal.
- **CO 2** The students will understand the relationship between structure, function and its relation to various biological processes.
- **CO 3** Student will gain an appreciation of the metabolic and physiological processes for stress adaptation

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-105	Semester	I
Practical Based on BIOS-101 to 104			
Course type	Practical	Total Credit	08
Teaching time	Examination Marking Scheme		
Practical (hrs)	Internal Marks	External Marks	Total Marks
16/week	60	140	200

The Course mainly emphasize on practical skill cell biology, biochemistry, Instrumentation, environmental sample analysis.

- **CO 1** Ability to apply basic principles of chemistry to biological systems and molecular biology.
- **CO 2** Ability to relate various interrelated physiological and metabolic events.
- **CO 3** A general awareness of current developments at the forefront in biochemistry and allied subjects.
- **CO 4** Ability to critically evaluate a problem and resolve to challenge blindly accepted concepts.
- **CO 5** Zeal and ability to work safely and effectively in a laboratory.
- **CO 6** Good experimental and quantitative skills encompassing preparation of laboratory
- **CO 7** Reagents, conducting experiments, satisfactory analyses of data and interpretation of results.
- **CO 8** Awareness of resources, and their conservation.
- **CO 9** Ability to think laterally and in an integrating manner and develop interdisciplinary approach.
- **CO 10** Overall knowledge of the avenues for research and higher academic achievements in the field of botany and allied subjects.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						
CO6						
CO7						
CO8						
CO9						
CO10						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-201	Semester	II
Evolution and Genetics			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-201: EVOLUTION AND GENETICS

Learning Objective and Outcomes:

The course concentrate on understanding of origin, evolutionary mechanism and genetics aspects of life. The aim of the course is to provide students with a deeper insight into the evolutionary processes. On completion of the course the students will be able to

- **CO 1** Describe the origin, evolutionary mechanism of life forms.
- **CO 2** Student will be correlate the evolution processes with behavior biology, palaeontology and molecular biology.
- **CO 3** Student will be explain the traditional to modern aspects with practical application in genetics.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-202	Semester	II
Molecular Biology and Recombinant DNA Methods			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-202: MOLECULAR BIOLOGY AND RECOMBINANT DNA METHODS

Learning Objective and Outcomes:

The subject offers the in-depth knowledge of the concepts, tools, techniques and process related to Molecular biology and recombinant DNA technology with respect to prokaryotic and eukaryotic cell

- **CO 1** Student will able to understand central dogma of life and compare the molecular biological processes among prokaryotic and eukaryotic cell.
- **CO 2** Student will able to describe and apply the recombinant DNA technology
- **CO 3** Student will able to explain the quantification, decoding, cloning and modification of gene and genome

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■				■	
CO2	■				■	
CO3		■	■		■	

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-203	Semester	II
Diversity and Ecology			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-203: DIVERSITY AND ECOLOGY

Learning Objective and Outcomes:

The course provides the Biodiversity concept and details information of ecology, taxonomy and natural history of Indian subcontinent. The subject elicit the interest of student regarding the nature conservation, natural biodiversity and environmental legislation of India

- **CO 1** Student shall get the information of natural flora, fauna of the world and India with current status of the population dynamics, the human intervention on ecosystem and community.
- **CO 2** Student will get the fundamental knowledge about the applied ecology and its application in conservation biology and sustainable development.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■		■		■	
CO2	■	■	■		■	■

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-204	Semester	II
Bioinformatics, IPR, Biosafety & Bioethics			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-204: BIOINFORMATICS, IPR, BIOSAFETY & BIOETHICS

Learning Objective and Outcomes:

The most valuable knowledge need to learn the student is the moral values and ethics along with the gaining of the knowledge of the interdisciplinary subject. The course provide the information and knowledge of the IPR, Biosafety and B

- **CO 1**Student will be utilized the available biological database, online resources and tools.
- **CO 2** Student will be able to understand and perform the bimolecular structure visualization, sequences alignment, modelling and drug discovery
- **CO 3** Student will be able to understand the regulation and importance of IPR and patent along with the ethical concern
- **CO 4** Student will be able to understand the Biosafety requirement and practice it during his/her practical and research work

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-205	Semester	II
Practical Based on BIOS-201 to 204			
Course type	Practical	Total Credit	08
Teaching time	Examination Marking Scheme		
Practical (hrs)	Internal Marks	External Marks	Total Marks
16/week	60	140	200

The Course mainly emphasize on practical skill cell biology, biochemistry, Instrumentation, environmental sample analysis.

- **CO 1**Ability to apply basic principles of chemistry to biological systems and molecular biology.
- **CO 2** Ability to relate various interrelated physiological and metabolic events.
- **CO 3** A general awareness of current developments at the forefront in biochemistry and allied subjects.
- **CO 4** Ability to critically evaluate a problem and resolve to challenge blindly accepted concepts.
- **CO 5** Zeal and ability to work safely and effectively in a laboratory.
- **CO 6** Good experimental and quantitative skills encompassing preparation of laboratory
- **CO 7** Reagents, conducting experiments, satisfactory analyses of data and interpretation of results.
- **CO 8** Awareness of resources, and their conservation.
- **CO 9** Ability to think laterally and in an integrating manner and develop interdisciplinary approach.
- **CO 10** Overall knowledge of the avenues for research and higher academic achievements in the field of biochemistry and allied subjects.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						
CO6						
CO7						
CO8						
CO9						
CO10						

SYLLABUS

M.Sc. Biosciences (Botany)

Sem. III and IV

CHOICE BASED CREDIT SYSTEM (CBCS)

w.e.f. June 2020

Department of Biosciences

Veer Narmad South Gujarat University, Surat

M.Sc. Biosciences (Botany) Semester- III							
Subject Code	Subject Title	Theory Hours/ week	Practical Hours/week	External Marks	Internal Marks	Total Marks	Credit
Bios -(B)-301	Phycology, Mycology and Plant Pathology	4	-	70	30	100	4
Bios -(B)-302	Advances in Archegoniatae and Paleobotany	4	-	70	30	100	4
Bios -(B)-303	Developmental Biology	4	-	70	30	100	4
Bios -(B)-304 (Elective)	(i) Medicinal Plants OR (ii) Plant Biotechnology OR (iii) Horticulture	4	-	70	30	100	4
Bios -(B)-305	Practical Based on Bios -(B)-301 to 304	-	16	140	60	200	8
Total		**16**	**16**	**420**	**180**	**600**	**24**

M.Sc. Biosciences (Botany) Semester- IV							
Subject Code	Subject Title	Theory Hours/ week	Practical Hours/week	External Marks	Internal Marks	Total Marks	Credit
Bios -(B)-401	Angiosperm taxonomy	4	-	70	30	100	4
Bios -(B)-402	Plant Anatomy and Histo-Chemical Techniques	4	-	70	30	100	4
Bios -(B)-403	Research Methodology and Professional Skills	4	-	70	30	100	4
Bios -(B)-404	Dissertation/Industrial Training	-	12	105	45	150	6
Bios -(B)-405	Practical Based on Bios -(B)-401 to 403	-	12	105	45	150	6

Total		12	24	420	180	600	24

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience (Botany)
Course Code	BIOS -(B)-301	Semester	III
Phycology and Mycology and Plant Pathology			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS -(B)-301 – PHYCOLOGY AND MYCOLOGY AND PLANT PATHOLOGY

Learning Objectives and Course Outcomes: .

- **CO 1**This Course focuses on the classification and general accounts of Algae and Fungi. It also includes interaction between plant and pathogen.
- **CO 2** After learning units I, II & III the students will able to understand the classification of algae and fungi including general account of different classes.
- **CO 3** Students will be able to understand, in unit IV, the interaction between pathogen and plant. Learn the defense mechanism of plants against pathogen along with general interaction with non-pathogenic microbes.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		**Programme Name**	**M.Sc. Bioscience (Botany)**
Course Code	**BIOS -(B)-302**	**Semester**	**III**
Advances in Archegoniatae and Paleobotany			
Course type	**Core Compulsory**	**Total Credit**	**04**
Teaching time	**Examination Marking Scheme**		
Theory (hrs)	**Internal Marks**	**External Marks**	**Total Marks**
4/week	**30**	**70 (Paper of 3hrs)**	**100**

BIOS -(B)-302 – ADVANCES IN ARCHEGONIATAE AND PALEOBOTANY

Learning Objective and Course Outcomes:

- **CO 1**This Course focuses on the classification and general accounts of Bryophytes, Pteridophytes, Gymnosperms and Fossil Records. It also includes the understanding of fossil formation and fossil study.
- **CO 2** After learning units I, II & III the students will able to understand the classification of Bryophytes, Pteridophytes and Gymnosperms including fossil records.
- **CO 3** Students will be able to understand, in unit IV, the formation of fossils and the method to study the fossils.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience (Botany)
Course Code	BIOS -(B)-303	Semester	III
Developmental Biology			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-(B)-303 – DEVELOPMENTAL BIOLOGY

Learning Objective and Outcomes:

- **CO 1** This Course focuses on the development of male and female reproductive organs of flowering plants called angiosperms. It gives complete idea of spore and gamete formations, gametophyte development in angiosperms and fertilization process.
- **CO 2** After learning units I, II & III the students will able to understand starting from the development of anther and ovule to the process of double fertilization leads to the development of embryo and endosperm.
- **CO 3**Students will be able to understand, the morphology of pollen grains and its application in various fields

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience (Botany)
Course Code	BIOS -(B)-304(i)	Semester	III
Medicinal Plants (Elective)			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-(B)-304(i) – MEDICINAL PLANTS (ELECTIVE)

Learning Objective and Outcomes:

- **CO 1** This Course focuses on medicinal plants, parts used, ethnomedicine, Indian system of medicine, and modern herbal science, pharmacognosy and phytochemistry.
- **CO 2** After learning this student will be able to identify medicinal plants, will have the knowledge of herbal wealth of Gujarat and the method of conducting ethnomedicinal study and modern laboratory techniques for studing medicinal plants.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-(B)-304(ii)	Semester	III
Plant Biotechnology (Elective)			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-(B)-304(ii) - PLANT BIOTECHNOLOGY (Elective)

Learning Objective and Outcomes:

- **CO 1** This Course focuses on the steps involved during the development of transgenic plants, its applications, DNA fingerprinting and Plant tissue culture.
- **CO 2** After learning units I & II, the students will able to understand the process of the development of transgenic plants and their applications.
- **CO 3** After learning units III & IV, students will have an insight on different types of DNA fingerprinting techniques and importance of Plant tissue culture techniques.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-(B)-304(iii)	Semester	III
Horticulture (Elective)			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-(B)-304(iii) - HORTICULTURE (Elective)

Learning Objective and Outcomes:

- **CO 1**This Course focuses on the scope of horticulture and its applications.
- **CO 2** After learning this the students will able to understand the process of plant propagatin techniques, identify ornamental and other useful species, their cultivation.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience (Botany)
Course Code	BIOS -(B)-305	Semester	III
Practical Based on Bios-(B)-301 to 304			
Course type	Core Compulsory	Total Credit	08
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
16/week	60	140	200

BIOS-(B)-305 – Practicals Based on Bios-(B)-301 to 304

Following are the indicative list of the experiments. Changes can be done depending upon the departmental need and availability of the resources.

- **CO 1**Students will learn methods of algal culture and mushroom cultivation.
- **CO 2** Students will learn microbes and DNA isolation techniques from the plants.
- **CO 3** Study of morphology and anatomy of thalloid and leafy forms of Bryophytes
- **CO 4** Study structural modification in Marchantiales, Jungermanniales, Isobryales and Hypnobryales.
- **CO 5** Students will learn use of DNA fluorochromes to localize nuclei during pollen and ovule development and in-vitro methods of pollen germination.
- **CO 6** Students will learn various aspects and parameters affecting the plant development.
- **CO 7** In elective subjects student will learn various methods to prepare extract from the plants of medicinal importance
- **CO 8** Students will also learn techniques to isolate and identify metabolites from the plant extract
- **CO 9** Students will learn application of biotechnology for plant tissue culture and preparation of media to culture plant in-vitro
- **CO 10** Students will learn preparation of panchgavya and its importance in plant development.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						
CO6						
CO7						
CO8						
CO9						
CO10						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-(B)-401	Semester	IV
Angiosperms Taxonomy			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-(B)-401 - ANGIOSPERMS TAXONOMY

Learning Objective and Outcomes:

- **CO 1** This Course focuses on angiosperm taxonomy including different classification systems, rules for nomenclature, floristic diversity, economic botany and modern methods of taxonomical study, APG.
- **CO 2** After learning this the students will able to identify plant species correctly and will understand the concepts, merits and demerits of classical systems of classification, methods and importance of naming of plant and to study the process of evoluation at work. The importance of plant for human welfare will be understood.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-(B)-402	Semester	IV
PLANT ANATOMY AND HISTO-CHEMICAL TECHNIQUES			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-(B)-402 - PLANT ANATOMY AND HISTO-CHEMICAL TECHNIQUES

Learning Objective and Outcomes:

- **CO 1** This Course focuses on plant anatomy and anatomical techniques including the method of sectioning, fixation, staining to study the anatomical features of the plant.
- **CO 2** After learning this the students will able to understand the different anatomical features of the plant. Student will be able to understand different types of microtome, particular stain to locate phytochemical and the method of tissue processing for electron microscopy.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-(B)-403	Semester	IV
RESEARCH METHODOLOGY AND PROFESSIONAL SKILLS			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-(B)-403 - RESEARCH METHODOLOGY AND PROFESSIONAL SKILL

Learning Objective and Outcomes:

The course is design to train student for research activity and communication skill at the end of the course student will be

- **CO 1** Able to understand the research problem and design and research work
- **CO 2** Able to write, prepare poster and present oral presentation
- **CO 3** Able to prepare CV and face the interview

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience (Botany)
Course Code	BIOS (B)-404	Semester	IV
Dissertation/ Training			
Course type	Core Compulsory	Total Credit	06
Teaching time	Examination Marking Scheme		
Practical / Lab (hrs)	Internal Marks	External Marks	Total Marks
12/week	45	105	150

BIOS(B)-404:DISSERTATION/ TRAINING

Learning Objective and Outcomes:

The course provides wide knowledge about research, experimental & sampling design,

- **CO 1** Data collection, analysis & interpretation of data and allows student to present the research data in scientific method
- **CO 2** Gains skill to solve problems using appropriate research method and inferential statistical tools
- **CO 3** Learns to collect literature collection, literature citation, and components of research report – Text, tables, figures, and bibliography.
- **CO 4** Critically analyse and evaluate the knowledge and understanding in relation to the agreed area of study.
- **CO 5** Integrate theory and practice.
- **CO 6** Develop responses on the basis of the evaluation and analysis undertake.
- **CO 7** Writing of dissertations, project proposals, project reports, research papers.
- **CO 8** Intellectual Property Rights – Biopiracy, copyrights, patent and traditional knowledge and plagiarism.
- **CO 9** Demonstrate advanced critical research skills in relation to career development or work-related learning studies.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						
CO6						
CO7						
CO8						
CO9						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		**Programme Name**	**M.Sc. Bioscience (Botany)**
Course Code	**BIOS -(B)-405**	**Semester**	**IV**
Practical Based on Bios -(B)-401 to 403			
Course type	**Core Compulsory**	**Total Credit**	**6**
Teaching time	**Examination Marking Scheme**		
Theory (hrs)	**Internal Marks**	**External Marks**	**Total Marks**
12/week	**45**	**105**	**150**

BIOS-(B)-405 – Practicals Based on Bios -(B)-401 to 403

The course is developed to cultivate practical expertise in the students in the field of microbiology. After completion of the course the students:

- **CO 1** plant anatomy and anatomical techniques including the method of sectioning, fixation, staining to study the anatomical features of the plant
- **CO 2** Student will be able to understand different types of microtome, particular stain to locate phytochemical
- **CO 3** method of tissue processing for electron microscopy.
- **CO 4** Students will be able to use various software to evaluate their scientific data and will be able to their thesis, articles and reviews scientific manner.
- **CO 5** Will be able to search the articles, journals, patents on various databases

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						

Proposed Syllabus

M. Sc. Bioscience (Microbiology)

Semester I & II

CHOICE BASED CREDIT SYSTEM (CBCS)

w.e.f. June 2019

Department of Biosciences
Veer Narmad South Gujarat University, Surat

M.Sc. Bioscience (Microbiology)

Programme Outcome (PO)

- **PO 1: Think Critically:** Get ability to apply the process of science by formulating hypotheses and design experiments based on the scientific method.
- **PO 2: Problem analysis:** Analyse and interpret results generated through studies in Master of Science, taxonomical treatments, field studies, excursion tours and laboratory techniques used in the subject. Identify credible scientific sources to interpret and evaluate the evidences.
- **PO 3: Reasoning ability:** Use quantitative reasoning by using mathematical calculations and graphing skills to solve problems in the field of science.
- **PO 4: Team work:** Students would perform functions that demand higher competence in national/international organizations with sporty spirits and helping each other.
- **PO 5: Communication Skill:** Effective Communication and collaborate with other disciplines by effectively communicating the fundamental concepts of Biological Science in written and oral format.
- **PO 6: Ethical awareness:** Understand the relationship between science and society by recognizing and discussing logical, scientific and ethical issues in Biological science subject.
- **PO 7: Environment and Sustainability:** Understand the issues of environmental contexts and sustainable development with respect to assessment, conservation and utilization of floral diversity
- **PO 8: Digitally literate:** Capable of using computers for Bioinformatics and computation
  and appropriate software for analysis of genomics and proteomics data, and employing modern bioinformatics search tools to locate, retrieve, and evaluate location and biological annotation genes of different species.
- **PO 9: Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio- technological changes
- **PO 10: Global thinking:** Knowledgeable disciple students with good values, ethics, and kind heart will help in nation building globally.

Programme Specific Outcome (PSOs)

- **PSO 1:**develop conceptual understanding of basic biology and applied aspects of microbiology
- **PSO 2:** learn about practical aspects of basic biology and microbiology
- **PSO 3:** They would identify, formulate and analyse the complex problems with reaching a substantiated conclusion. Logical thinking with application of biological, physical and chemical sciences. Learning that develops analytical and integrative problem-solving approaches.

- **PSO 4:** Students would perform functions that demand higher competence in national/international organizations with sporty and helping spirits. Prepare the students for many competitive exams like MPSC, UPSC NET SET GATE.

- **PSO5:** Best problem-solving skills in students would encourage them to carry out innovative research projects thereby making them to use knowledge creation in depth.
- **PSO6:** Knowledgeable, disciplined students with good values, ethics, and kind heart will help in nation building globally. Student should be aware of ethical issues and regulatory considerations while addressing society needs for growth with honesty

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
PO1		■	■			
PO2					■	
PO3	■	■	■			
PO4		■				
PO5		■				
PO6						■
PO7						■
PO8		■				
PO9				■		
PO10						■

M. Sc. Bioscience Sem. I							
Subject Code	Subject Title	Theory Hours/ week	Practical Hours/week	External Marks	Internal Marks	Total Marks	Credit
Bios-101	Biochemistry	4	-	70	30	100	4
Bios-102	Cell Biology and Immunology	4	-	70	30	100	4
Bios-103	Instrumentations and Biostatistics	4	-	70	30	100	4
Bios-104	Fundamentals of Developmental Biology and Physiology	4	-	70	30	100	4
Bios- 105	Practical Based on Bios-101 to 104	-	16	140	60	200	8
Total		**16**	**16**	**420**	**180**	**600**	**24**

M. Sc. Bioscience Sem. II							
Subject Code	Subject Title	Theory Hours/ week	Practical Hours/week	External Marks	Internal Marks	Total Marks	Credit
Bios-201	Evolution and Genetics	4	-	70	30	100	4
Bios-202	Molecular Biology and Recombinant DNA methods	4	-	70	30	100	4
Bios-203	Diversity and ecology	4	-	70	30	100	4
Bios-204	Bioinformatics, IPR, Biosafety & Bioethics	4	-	70	30	100	4
Bios- 205	Practical Based on Bios-201 to 204	-	16	140	60	200	8
Total		**16**	**16**	**420**	**180**	**600**	**24**

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-101	Semester	I
Biochemistry			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-101: BIOCHEMISTRY

Learning Objective and Outcomes:

This Course will focuses on the synthesis, structure and functions of biomolecules in the living organisms. After learning this unit the students will be able to

- **CO 1** Student will be able to understand the process of synthesis of proteins, lipids, nucleic acids, and carbohydrates and their role in metabolic pathways along with their regulation at the epigenetic, transcriptional, translational, and post-translational levels including RNA and protein folding, modification, and degradation.
- **CO 2** Students will be able to explain reaction kinetics, thermodynamics of the molecules. They will be able to understand principles of catalysis and enzyme kinetics.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■		■		■	
CO2	■	■		■	■	

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-102	Semester	I
Cell Biology and Immunology			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-102: CELL BIOLOGY AND IMMUNOLOGY

Learning Objective and Outcomes:

The course mainly emphasize on study of ultra-structure of various cell types, cell division and its regulation. The course also deals with molecules involve in immune system and their role in immune system. After learning this course students will be able to understand…

- **CO 1** Basic structure and chemical properties of plant, animal and bacterial cells
- **CO 2** Phases, mechanism and regulation of cell cycle, cell signaling pathways and cancer biology
- **CO 3** Students will be also able to explain molecules involved in innate and adaptive immunity and response of immune system in various pathogenic condition

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-103	Semester	I
Instrumentations and Biostatistics			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-103: INSTRUMENTATIONS AND BIOSTATISTICS

***Learning Objective and Outcomes*:**

The course is designed to develop the experimental techniques and bio statistical skill for student. At the end of this course the students will be able to explain the principle, construction and working of various analytical instruments. Students will get detailed information about the applications of analytical techniques in Biological sciences. They will be able to

- **CO 1** Understand and use various qualitative and quantitative techniques i.e. microscopic, spectroscopic, chromatographic, etc.
- **CO 2** They will be able to explain various histochemical and immunotechniques for the detection of molecules in living cells. They will learn detection and measurements of different types of radioisotopes as well as electrophysiological methods
- **CO 3** Students will be able to analyse the biological data by manual and computational methods

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-104	Semester	I
Fundamentals of Developmental Biology and Physiology			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-104: FUNDAMENTALS OF DEVELOPMENTAL BIOLOGY AND PHYSIOLOGY

Learning Objective and Outcomes:

The course has created to exposed student with the fundamental of developmental biology and physiology of the different life forms. The course explores various topics in plant physiology, and biochemistry including primary and secondary metabolism, photosynthesis, respiration, water relations, mineral nutrition, response to environmental stress, roles of plant hormones. After completing this course,

- **CO 1** Students will be able to explain important developmental aspects in plants and animal.
- **CO 2** The students will understand the relationship between structure, function and its relation to various biological processes.
- **CO 3** Student will gain an appreciation of the metabolic and physiological processes for stress adaptation

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-105	Semester	I
Practical Based on BIOS-101 to 104			
Course type	Practical	Total Credit	08
Teaching time	Examination Marking Scheme		
Practical (hrs)	Internal Marks	External Marks	Total Marks
16/week	60	140	200

The Course mainly emphasize on practical skill cell biology, biochemistry, Instrumentation, environmental sample analysis.

- **CO 1** Ability to apply basic principles of chemistry to biological systems and molecular biology.
- **CO 2** Ability to relate various interrelated physiological and metabolic events.
- **CO 3** A general awareness of current developments at the forefront in biochemistry and allied subjects.
- **CO 4** Ability to critically evaluate a problem and resolve to challenge blindly accepted concepts.
- **CO 5** Zeal and ability to work safely and effectively in a laboratory.
- **CO 6** Good experimental and quantitative skills encompassing preparation of laboratory
- **CO 7** Reagents, conducting experiments, satisfactory analyses of data and interpretation of results.
- **CO 8** Awareness of resources, and their conservation.
- **CO 9** Ability to think laterally and in an integrating manner and develop interdisciplinary approach.
- **CO 10** Overall knowledge of the avenues for research and higher academic achievements in the field of botany and allied subjects.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						
CO6						
CO7						
CO8						
CO9						
CO10						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		**Programme Name**	**M.Sc. Bioscience**
Course Code	**BIOS-201**	**Semester**	**II**
Evolution and Genetics			
Course type	**Core Compulsory**	**Total Credit**	**04**
Teaching time	**Examination Marking Scheme**		
Theory (hrs)	**Internal Marks**	**External Marks**	**Total Marks**
4/week	**30**	**70 (Paper of 3hrs)**	**100**

BIOS-201: EVOLUTION AND GENETICS

Learning Objective and Outcomes:

The course concentrate on understanding of origin, evolutionary mechanism and genetics aspects of life. The aim of the course is to provide students with a deeper insight into the evolutionary processes. On completion of the course the students will be able to

- **CO 1** Describe the origin, evolutionary mechanism of life forms.
- **CO 2** Student will be correlate the evolution processes with behavior biology, palaeontology and molecular biology.
- **CO 3** Student will be explain the traditional to modern aspects with practical application in genetics.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		**Programme Name**	**M.Sc. Bioscience**
Course Code	**BIOS-202**	**Semester**	**II**
Molecular Biology and Recombinant DNA Methods			
Course type	**Core Compulsory**	**Total Credit**	**04**
Teaching time	**Examination Marking Scheme**		
Theory (hrs)	**Internal Marks**	**External Marks**	**Total Marks**
4/week	30	70 (Paper of 3hrs)	100

BIOS-202: MOLECULAR BIOLOGY AND RECOMBINANT DNA METHODS

Learning Objective and Outcomes:

The subject offers the in-depth knowledge of the concepts, tools, techniques and process related to Molecular biology and recombinant DNA technology with respect to prokaryotic and eukaryotic cell

- **CO 1** Student will able to understand central dogma of life and compare the molecular biological processes among prokaryotic and eukaryotic cell.
- **CO 2** Student will able to describe and apply the recombinant DNA technology
- **CO 3** Student will able to explain the quantification, decoding, cloning and modification of gene and genome

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■				■	
CO2	■				■	
CO3		■	■		■	

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-203	Semester	II
Diversity and Ecology - I			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-203: DIVERSITY AND ECOLOGY

Learning Objective and Outcomes:

The course provides the Biodiversity concept and details information of ecology, taxonomy and natural history of Indian subcontinent. The subject elicit the interest of student regarding the nature conservation, natural biodiversity and environmental legislation of India

- **CO 1** Student shall get the information of natural flora, fauna of the world and India with current status of the population dynamics, the human intervention on ecosystem and community.
- **CO 2** Student will get the fundamental knowledge about the applied ecology and its application in conservation biology and sustainable development.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■		■		■	
CO2	■	■	■		■	■

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-204	Semester	II
Bioinformatics, IPR, Biosafety & Bioethics			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

BIOS-204: BIOINFORMATICS, IPR, BIOSAFETY & BIOETHICS

Learning Objective and Outcomes:

The most valuable knowledge need to learn the student is the moral values and ethics along with the gaining of the knowledge of the interdisciplinary subject. The course provide the information and knowledge of the IPR, Biosafety and B

- **CO 1**Student will be utilized the available biological database, online resources and tools.
- **CO 2** Student will be able to understand and perform the bimolecular structure visualization, sequences alignment, modelling and drug discovery
- **CO 3** Student will be able to understand the regulation and importance of IPR and patent along with the ethical concern
- **CO 4** Student will be able to understand the Biosafety requirement and practice it during his/her practical and research work

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience
Course Code	BIOS-205	Semester	II
Practical Based on BIOS-201 to 204			
Course type	Practical	Total Credit	08
Teaching time	Examination Marking Scheme		
Practical (hrs)	Internal Marks	External Marks	Total Marks
16/week	60	140	200

The Course mainly emphasize on practical skill cell biology, biochemistry, Instrumentation, environmental sample analysis.

- **CO 1**Ability to apply basic principles of chemistry to biological systems and molecular biology.
- **CO 2** Ability to relate various interrelated physiological and metabolic events.
- **CO 3** A general awareness of current developments at the forefront in biochemistry and allied subjects.
- **CO 4** Ability to critically evaluate a problem and resolve to challenge blindly accepted concepts.
- **CO 5** Zeal and ability to work safely and effectively in a laboratory.
- **CO 6** Good experimental and quantitative skills encompassing preparation of laboratory
- **CO 7** Reagents, conducting experiments, satisfactory analyses of data and interpretation of results.
- **CO 8** Awareness of resources, and their conservation.
- **CO 9** Ability to think laterally and in an integrating manner and develop interdisciplinary approach.
- **CO 10** Overall knowledge of the avenues for research and higher academic achievements in the field of biochemistry and allied subjects.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						
CO6						
CO7						
CO8						
CO9						
CO10						

Syllabus

M. Sc. Bioscience (Microbiology)

Semester III & IV

CHOICE BASED CREDIT SYSTEM (CBCS)

w.e.f. June 2020

Department of Biosciences
Veer Narmad South Gujarat University, Surat

M. Sc. Bioscience (Microbiology) Sem. III							
Subject Code	Subject Title	Theory Hours/ week	Practical Hours/week	External Marks	Internal Marks	Total Marks	Credit
Bios (M) -301	Microbial diversity	4	-	70	30	100	4
Bios (M) 302	Omics and Integrative Microbiology	4	-	70	30	100	4
Bios (M) 303	Medical and Pharmaceutical Microbiology	4	-	70	30	100	4
Bios (M) 304	Industrial Microbiology and Fermentation Technology	4	-	70	30	100	4
Bios (M) 305	Practical Based on Bios-301 to 304	-	16	140	60	200	8
Total		**16**	**16**	**420**	**180**	**600**	**24**

M. Sc. Bioscience (Microbiology) Sem. IV							
Subject Code	Subject Title	Theory Hours/ week	Practical Hours/week	External Marks	Internal Marks	Total Marks	Credit
Bios (M) 401	Microbial Genetics and Physiology	4	-	70	30	100	4
Bios (M) 402	Applied Microbiology	4	-	70	30	100	4
Bios (M) 403	Research Methodology and Professional Skills	4	-	70	30	100	4
Bios (M) 404	Dissertation/Training	-	12	105	45	150	6
Bios (M) 405	Practical Based on Bios-401 to 403	-	12	105	45	150	6
Total		**12**	**24**	**420**	**180**	**600**	**24**

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		**Programme Name**	**M.Sc. Bioscience (Micro)**
Course Code	**Bios (M) -301**	**Semester**	**III**
Microbial Diversity			
Course type	**Core Compulsory**	**Total Credit**	**04**
Teaching time	**Examination Marking Scheme**		
Theory (hrs)	**Internal Marks**	**External Marks**	**Total Marks**
4/week	**30**	**70 (Paper of 3hrs)**	**100**

Bios (M) 301: MICROBIAL DIVERSITY

Learning Objective and Outcomes:

This Course will focuses to to give students the knowledge about the microbial diversity. At the end of the course students will be able to

- CO 1 Understand the diversity of microbial world
- CO 2 Classify the microorganism

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		**Programme Name**	**M.Sc. Bioscience (Micro)**
Course Code	**Bios (M) -302**	**Semester**	**III**
Omics and Integrative Microbiology			
Course type	**Core Compulsory**	**Total Credit**	**04**
Teaching time	**Examination Marking Scheme**		
Theory (hrs)	**Internal Marks**	**External Marks**	**Total Marks**
4/week	**30**	**70 (Paper of 3hrs)**	**100**

Bios (M) -302: OMICS AND INTEGRATIVE MICROBIOLOGY

Learning Objective and Outcomes:

The course mainly emphasize on study concept development and application of omics and integrative science. After learning this course students will be able to understand

- CO 1 Concept, Mechanism and application genomics, Proteomics and metagenomics
- CO 2 Design the experimental protocol for genomics, Proteomics and metagenomics
- CO 3 Analyze the results of for genomics, Proteomics and metagenomics

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■		■			
CO2	■		■		■	
CO3	■		■			

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		**Programme Name**	**M.Sc. Bioscience (Micro)**
Course Code	**Bios (M) -303**	**Semester**	**III**
Medical and Pharmaceutical Microbiology			
Course type	**Core Compulsory**	**Total Credit**	**04**
Teaching time	**Examination Marking Scheme**		
Theory (hrs)	**Internal Marks**	**External Marks**	**Total Marks**
4/week	**30**	**70 (Paper of 3hrs)**	**100**

Bios (M) -303: MEDICAL AND PHARMACEUTICAL MICROBIOLOGY

***Learning Objective and Outcomes*:**

The course is designed to develop the basic understanding skill required for microbiology student for Medical and pharmaceutical sector. They will be able to

- CO 1 Identify the diseases, Causative agent of various microbial disease of human
- CO 2 Understand the concept and application of epidemiology
- CO 3 Understand the need of microbial procedure in pharm industry
- CO 4 Understand the Quality requirement and management

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■	■	■			
CO2	■	■				
CO3	■	■		■	■	
CO4	■	■				■

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		**Programme Name**	**M.Sc. Bioscience (Micro)**
Course Code	**Bios (M) -304**	**Semester**	**III**
Industrial Microbiology and Fermentation Technology			
Course type	**Core Compulsory**	**Total Credit**	**04**
Teaching time	**Examination Marking Scheme**		
Theory (hrs)	**Internal Marks**	**External Marks**	**Total Marks**
4/week	**30**	**70 (Paper of 3hrs)**	**100**

Bios (M) -304: INDUSTRIAL MICROBIOLOGY AND FERMENTATION TECHNOLOGY

Learning Objective and Outcomes:

The course has created to expose students to various industrial microbiology process after completing this course student will be

- CO 1 Able to understand the application of microbial process in the industry
- CO 2 Able to understand the role and responsibility of Microbiologist in Industry
- CO 3 Student will gain exposure to economic value of microbiology

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		**Programme Name**	**M.Sc. Bioscience (Micro)**
Course Code	**Bios (M) -305**	**Semester**	**III**
Practical Based on BIOS-301 to 304			
Course type	**Practical**	**Total Credit**	**08**
Teaching time	**Examination Marking Scheme**		
Practical (hrs)	**Internal Marks**	**External Marks**	**Total Marks**
16/week	**60**	**140**	**200**

Bios (M) - 305: Practical Based on BIOS-301 to 304

The Course mainly emphasize on practical skill in molecular biology, genetics and environmental sample analysis. After completion f this course students will achieve:

- **CO1** Ability to apply basic principles of microbial genetics and learn to isolate and identification of microbes by various methods.
- **CO2** Ability to understand the application of microbial critically evaluate a problem and resolve to challenge blindly accepted concepts.
- **CO3** Zeal and ability to understand various formats of sequencing data and its quality assessment.
- **CO4** Will genomic and proteomics data analysis and its applications
- **CO5** Will be able to evaluate community and fuctional metagenimics of various animals and its significance
- **CO6** Will develop good experimental and quantitative skills in medical and pharmaceutical microbiology encompassing preparation of laboratory
- **CO7** Reagents, conducting experiments, satisfactory analyses of data and interpretation of results.
- **CO8** Will be able to understand fermentation technology and its applications at industrial level.

	PS01	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						
CO6						
CO7						
CO8						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		**Programme Name**	**M.Sc. Bioscience (Micro)**
Course Code	**Bios (M) -401**	**Semester**	**IV**
Microbial Genetics and Physiology			
Course type	**Core Compulsory**	**Total Credit**	**04**
Teaching time	**Examination Marking Scheme**		
Theory (hrs)	**Internal Marks**	**External Marks**	**Total Marks**
4/week	**30**	**70 (Paper of 3hrs)**	**100**

Bios (M) -401: MICROBIAL GENETICS AND PHYSIOLOGY

Learning Objective and Outcomes: The course concentrate on understanding of mutation, mobile element and phage along with microbial bioprocess and physiological aspects of microorganisms. The aim of the course is to provide students with a deeper insight into the microbial genetics and physiological processes. On completion of the course the students will be able to

- CO 1 Describe the Mutation, Mobile Element and Phage genetics details.
- CO 2 Student will be correlate the Microbial Physiology, Anaerobic Bioprocesses and Metabolic Regulation and extremophiles biology.
- CO 3 Student will be explain the traditional to modern aspects with practical application in genetics.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■					
CO2	■		■			
CO3		■				■

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		**Programme Name**	**M.Sc. Bioscience (Micro)**
Course Code	**Bios (M) -402**	**Semester**	**IV**
Applied Microbiology			
Course type	**Core Compulsory**	**Total Credit**	**04**
Teaching time	**Examination Marking Scheme**		
Theory (hrs)	**Internal Marks**	**External Marks**	**Total Marks**
4/week	**30**	**70 (Paper of 3hrs)**	**100**

Bios (M) -402: APPLIED MICROBIOLOGY

Learning Objective and Outcomes: The subject offers the in-depth knowledge of the concepts, tools, techniques and process related to various field of applied Microbiology. On completion of the course the students will be able to

- CO 1 Understand the application of Microbiology in agriculture, health and environment
- CO 2 Know the responsibility of Microbiologist in the various industrial operation
- CO 3 Understand the relation of Host Microbiome and its application

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■					■
CO2		■				
CO3			■			

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience (Micro)
Course Code	Bios (M) -403	Semester	IV
Research Methodology and Professional Skills			
Course type	Core Compulsory	Total Credit	04
Teaching time	Examination Marking Scheme		
Theory (hrs)	Internal Marks	External Marks	Total Marks
4/week	30	70 (Paper of 3hrs)	100

Bios (M) -403: RESEARCH METHODOLOGY AND PROFESSIONAL SKILLS

Learning Objective and Outcomes: The course is design to train student for research activity and communication skill at the end of the course student will be

- CO 1 Able to understand the research problem and design and research work
- CO 2 Able to write, prepare poster and present oral presentation
- CO 3 Able to prepare CV and face the interview

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■				■	
CO2		■				
CO3		■				

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		Programme Name	M.Sc. Bioscience (Micro)
Course Code	Bios (M) -404	Semester	IV
Dissertation/ Training			
Course type	Core Compulsory	Total Credit	06
Teaching time	Examination Marking Scheme		
Practical / Lab (hrs)	Internal Marks	External Marks	Total Marks
12/week	45	105 (Paper of 3hrs)	150

Bios (M) -404: DISSERTATION/ TRAINING

The course provides wide knowledge about research, experimental & sampling design,

- **CO 1** Data collection, analysis & interpretation of data and allows student to present the research data in scientific method
- **CO 2** Gains skill to solve problems using appropriate research method and inferential statistical tools
- **CO 3** Learns to collect literature collection, literature citation, and components of research report – Text, tables, figures, and bibliography.
- **CO 4** Critically analyse and evaluate the knowledge and understanding in relation to the agreed area of study.
- **CO 5** Integrate theory and practice.
- **CO 6** Develop responses on the basis of the evaluation and analysis undertake.
- **CO 7** Writing of dissertations, project proposals, project reports, research papers.
- **CO 8** Intellectual Property Rights – Biopiracy, copyrights, patent and traditional knowledge and plagiarism.
- **CO 9** Demonstrate advanced critical research skills in relation to career development or work-related learning studies.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						
CO6						
CO7						
CO8						
CO9						

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT			
Programme Code		**Programme Name**	**M.Sc. Bioscience (Micro)**
Course Code	**Bios (M) -405**	**Semester**	**IV**
Practical Based on BIOS-401 to 403			
Course type	**Practical**	**Total Credit**	**06**
Teaching time	**Examination Marking Scheme**		
Practical (hrs)	**Internal Marks**	**External Marks**	**Total Marks**
12/week	**45**	**105**	**150**

Bios (M) - 405: Practical based on paper 401 to 403

The course is developed to cultivate practical expertise in the students in the field of microbiology. After completion of the course the students:

- **CO 1** Will be able to apply advance techniques in the field of microbiology.
- **CO 2** Students will be able to evaluate the biochemical and physiological aspects of the microbes in the laboratory through various methods.
- **CO 3** Students will be able to isolate the metagenome of the various plants and animals and will be able to understand their coexistence and significance to the environment as well as the flora and fauna.
- **CO 4** Students will be able to use various software to evaluate their scientific data and will be able to their thesis, articles and reviews scientific manner.
- **CO 5** Will be able to search the articles, journals, patents on various databases

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						

B. Sc. Biotechnology

Name of Program	**M. Sc. Integrated Biotechnology**
Abbreviation	**BT**
Duration	**3 Years**
Eligibility Criteria	**12th Science passed from GHSEB, CBSE, ICSE with "B or AB" group**
Objective of Program	To convey scientific and technological knowledge and information with modern age orientation. To help young learners and realize that science and technology, both hand in hand can enrich and develop a personality, thus promising a life of success and achievement.
Program Outcome	• **PO1: Think Critically:** Get ability to apply the process of science by formulating hypotheses and design experiments based on the scientific method. • **PO2: Problem analysis:** Analyse and interpret results generated through studies in Master of Science, taxonomical treatments, field studies, excursion tours and laboratory techniques used in the subject. Identify credible scientific sources to interpret and evaluate the evidences. • **PO 3: Reasoning ability:** Use quantitative reasoning by using mathematical calculations and graphing skills to solve problems in the field of science. • **PO 4: Team work:** Students would perform functions that demand higher competence in national/international organizations with sporty spirits and helping each other. • **PO 5: Communication Skill:** Effective Communication and collaborate with other disciplines by effectively communicating the fundamental concepts of Biological Science in written and oral format. • **PO 6: Ethical awareness:** Understand the relationship between science and society by recognizing and discussing logical, scientific and ethical issues in Biological science subject. • **PO 7: Environment and Sustainability:** Understand the issues of environmental contexts and sustainable development with respect location and biological annotation genes of different species. to assessment, conservation and utilization of floral diversity • **PO 8: Digitally literate:** Capable of using computers for Bioinformatics and computation and appropriate software for analysis of genomics and proteomics data, and employing modern bioinformatics search tools to locate, retrieve, and evaluate • **PO 9: Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes • **PO 10: Global thinking:** Knowledgeable disciple students with good values, ethics, and kind heart will help in nation building globally.
Program Specific Outcomes	Students will be able to appear and qualify for competitive exams like NET, GSET, and GATE. They will be skilled enough to join any research institute, Biopharma industry or even start ventures of their own. PSO1: Postgraduate students will be able to demonstrate and apply the principles of bioprocess engineering in the design, analysis, optimization and simulation of bioprocess operations.

	PSO2: Students will be able to gain fundamental knowledge in animal and plant biotechnology and their applications. PSO3: Students will be able to (a) To elaborate concepts of biochemistry with easy to run experiments; (b) To familiarize with basic laboratory instruments and understand the principle of measurements using those instruments with experiments in biochemistry. PSO4: Students will be able to understand various facets of molecular procedures and basics of genomics, proteomics and metabolomics that could be employed in early diagnosis and prognosis of human diseases. PSO5: Students will be able to gain hands on experience in gene cloning, protein expression and purification. PSO6: This experience would enable them to begin a career in industry that engages in genetic engineering as well as in research laboratories conducting fundamental research.
Mapping between POs and PSOs	
Medium of Instruction	English

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
PO1	■		■		■	
PO2	■	■	■		■	
PO3		■	■	■		■
PO4		■	■	■		■
PO5		■	■		■	■
PO6	■	■	■	■	■	■
PO7	■	■	■	■	■	■
PO8	■	■	■	■	■	■
PO9	■	■	■	■	■	■
PO10		■	■	■	■	

B. Sc. Biotechnology

Name of Program	**M. Sc. Integrated Biotechnology**
Abbreviation	**BT**
Duration	**3 Years**
Medium of Instruction	English
Program Structure	Semester I

Course Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
	Foundation Compulsory	2	0	2	2 Hrs	50	20	70
	Generic Elective	2	0	2	2 Hrs	50	20	70
	Core 1	4	4	4	2 +2 Hrs	50	20	70
	Core 2	4	4	4	2 +2 Hrs	50	20	70
	Core 3	4	4	4	2 +2 Hrs	50	20	70
	Foundation Elective	2	0	2	2 Hrs	50	20	70
	BTP - 01	0	4	2	4 Hrs	40	40	80
	MBP - 103	0	4	2	4 Hrs	40	40	80
	Z 101/102 / BOT 103	0	4	2	4 Hrs	40	40	80
	Total	18	12	24	30Hrs	420	220	660

Program Structure	Semester II

Course Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
	Foundation Compulsory	2	0	2	2 Hrs	50	20	70
	Generic Elective	2	0	2	2 Hrs	50	20	70
	Core 1	4	4	4	2 +2 Hrs	50	20	70
	Core 2	4	4	4	2 +2 Hrs	50	20	70

	Core 3	4	4	4	2 +2 Hrs	50	20	70
	Foundation Elective	2	0	2	2 Hrs	50	20	70
	BTP - 02	0	4	2	4 Hrs	40	40	80
	MBP - 203	0	4	2	4 Hrs	40	40	80
	Z 201/202 / BOT 203	0	4	2	4 Hrs	40	40	80
	Total	18	12	24	30Hrs	420	220	660

Course Code	**BT-01**
Course Title	**INTRODUCTION TO BIOTECHNOLOGY**
Credit	4
Teaching per Week	4
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	To provide knowledge to students regarding fundamental concepts of Biotechnology.
Course Objective	To help them gain knowledge regarding scope of Biotechnology and to discuss the application part of Biotechnology.
Course Outcomes	CO1: To explain students about the fundamentals of Biotechnology, to explain them the interdisciplinary pursuit of biotechnology, to make them aware about public perception of biotechnology. CO2: To make them aware about the scope of biotechnology in form of different fields and concepts used in biotechnology. CO3: Students will be given idea for use of biotechnology concept in environmental, animal, plant, microbiology, health and diagnostics related studies. CO4: To provide them information related to biotechnology-based institutes and organizations in India, to explain them biotechnological application in industries.
Mapping between COs with PSOs	
Pre-requisite	Basic science

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■					
CO2	■		■			
CO3	■	■	■		■	
CO4		■	■	■		■

Course Content	**UNIT-1: UNDERSTANDING BIOTECHNOLOGY:** 1.1 What is Biotechnology? 1.2 Biotechnology-an interdisciplinary pursuit 1.3 Biotechnology- a three-component central core 1.4 Product safety 1.5 Public perception of Biotechnology 1.6 Biotechnology and developing world **UNIT-2: SCOPE OF BIOTECHNOLOGY-I:** 2.1 Recombinant DNA and genetic engineering 2.2 Mammalian cell culture 2.3 Plants and plant cell culture 2.4 Bio-fuels 2.5 Bio-catalysis 2.6 Waste Water and Sewage treatment **UNIT-3: SCOPE OF BIOTECHNOLOGY-II:** 3.1 Fermentation 3.2 Bio-fertilizer 3.3 Bio-pesticides 3.4 Vaccines 3.5 Monoclonal antibodies 3.6 Diagnostics in developing countries **UNIT-4: BIOTECHNOLOGY IN INDIA:** 4.1 Introduction to DBT 4.2 Autonomous institutions of DBT 4.3 Public sector undertakings of DBT 4.4 BTIS-NET 4.5 Introduction to ABLE 4.6 Biotechnology- Current status of industrial growth in India
Reference Books	**REFERENCES:** 1. Karp, G. (2014) *Cell Biology*, 7th Edition, International Student Version, Wiley. 2. Willey, J. M., Sherwood, L. M. & Woolverton, C. J. (2017) *Prescott, Harley & Klein's Microbiology*, 10th Edition, The McGraw-Hill Companies, Inc.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	**BT-02**
Course Title	**CELL BIOLOGY**
Credit	4
Teaching per Week	2
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019

<table>
<tr><td>Purpose of Course</td><td>The purpose of the course is to provide insights about basics of cell biology including cell membrane and cell cycle</td></tr>
<tr><td>Course Objective</td><td>To acquaint students with the concepts of cell biology</td></tr>
<tr><td>Course Outcomes</td><td>CO1: To acquaint students with basic properties of cell, cell theory and fundamental classes of cell.

CO2: To elaborate on brief history of plasma membrane, structure, composition, and functions of plasma membrane.

CO3: Students will acquire concepts of dynamic nature of plasma membrane, types of movement across plasma membrane and membrane potential.

CO4: Students will gain fundamentals of cell cycle stages and control.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td><td>PSO6</td></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Pre-requisite</td><td>Basic science</td></tr>
<tr><td>Course Content</td><td>UNIT-1: FUNDAMENTALS OF CELL:
1.1 Discovery of cells
1.2 Basic properties of cells
1.3 Fundamental classes of cells: (Ultra structure and functions)
1.3.1 Prokaryotic cell
1.3.2 Eukaryotic cells (Plant and Animal)
1.4 Viruses

UNIT-2: CELLULAR MEMBRANES: STRUCTURE
2.1 Brief history of studies on plasma membrane structure
2.2 Chemical composition of membranes
2.3 Structure and functions of membrane proteins
2.4 Membrane lipids & membrane fluidity

UNIT-3: CELLULAR MEMBRANES: FUNCTIONS
3.1 An overview of membrane functions
3.2 Dynamic nature of plasma membrane
3.3 Movement of substances across cell membrane
3.4 Membrane potentials & nerve impulses

UNIT-4: CELL CYCLE, MITOSIS AND MEIOSIS:
4.1 The Cell Cycle:
4.1.1 Cell cycle in vivo
4.1.2 Control of cell cycle
4.2 M Phase: Mitosis & Cytokinesis:
4.2.1 Prophase
4.2.2 Pro-metaphase
4.2.3 Metaphase
4.2.4 Anaphase
4.2.5 Telophase
4.2.6 Forces required for mitotic movements</td></tr>
</table>

	4.2.7 Cytokinesis 4.3 **Meiosis:** 4.3.1 The stages of meiosis 4.3.2 Genetic recombination during meiosis
Reference Books	**REFERENCES:** 1. Karp, G. (2014) *Cell Biology*, 7th Edition, International Student Version, Wiley. 2. Willey, J. M., Sherwood, L. M. & Woolverton, C. J. (2017) *Prescott, Harley & Klein's Microbiology*, 10th Edition, The McGraw-Hill Companies, Inc.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	**BTP-01**
Course Title	**Biotechnology Practical**
Credit	2
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	The purpose of the course is to gives basic knowledge about the laboratory work and instrumentation.
Course Objective	To provide education that leads to comprehensive understanding of the principles and practices of biotechnology.
Course Outcomes	CO1: Students have a knowledge of all laboratory instruments and its principle and use. CO2: Students have a knowledge of General laboratory safety rules and methods. CO3: Train students have an idea regarding disposal of laboratory waste and infected cultures. CO4: Explain and train students have subjective knowledge of Bioprocess, Animal Cell Culture and Plant Tissue Culture laboratories.
Mapping between COs with PSOs	
Pre-requisite	Basic science

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■					
CO2	■		■			
CO3	■	■	■		■	
CO4		■	■	■		■

Course Content	1. Principle, working and uses of laboratory instruments: [Microscope, Incubator, pH meter, Centrifuge, Colony counter] 2. Principle, working and uses of various types of sterilizers: [Hot air oven, Steam sterilizer, Inspissator, Bacteriological filters] 3. Introduction to Bioprocess, Animal Cell Culture and Plant Tissue Culture laboratories 4. General laboratory safety and instructions 5. Preparation and sterilization of glassware's and media, disposals of media and cultures 6. DNA staining by Schiff's reagent using onion peel 7. Study of various stages of meiosis using permanent slides 8. Study of various stages of mitotic cell division using onion root tips 9. Barr body from buccal smear 10. Geimsa staining of Blood cells
Reference Books	1. Patel RJ, Patel KR. Experimental microbiology Part II. Aditya Publication, Ahmedabad. 2016. 2. K.R .Aneja Experimental in Microbiology plant Pathology and Biotechnology.
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Semester 2 BT

Course Code	BT-03
Course Title	Basic Biochemistry
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	The purpose of the course is to make the student capable of understanding the basic biochemical process of evolution. It makes the student to understand various energy transfer process, and also makes students able to understand basic biochemistry of water and importance of buffers and their preparation.
Course Objective	The main objective of course is to give basic understanding about the chemistry of living cell.
Course Outcomes	CO1 : explain students about basic knowledge about biochemistry CO2 : explain about relationship between mutation and evolution CO3 : give insight in to various energy transfer processes with cell economy CO4 : knowledge about different types of buffers and their preparation with its significance
Mapping between COs with PSOs	

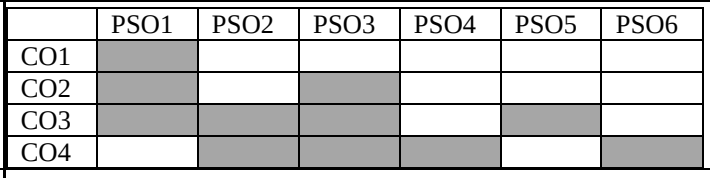
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

Pre-requisite	Basic Science
Course Content	**UNIT-1: EVOLUTIONARY FOUNDATIONS:** 1.1 Changes in the hereditary instructions 1.2 Appearance of bio-molecules 1.3 A possible "RNA world" scenario 1.4 Biological evolution 1.5 Synthetic cells 1.6 Evolution of eukaryotic cells 1.7 Functional genomics and its importance in human biology & medicine **UNIT-2: PHYSICAL FOUNDATIONS:** 2.1 Dynamic steady state of living organisms 2.2 Energy transformation in living organisms 2.3 Flow of electrons as source of energy 2.4 Requirement of work and energy for creation and maintenance 2.5 Energy coupling links reactions in biology 2.6 Enzymes promote sequences of chemical reactions 2.7 Regulation to achieve balance and economy **UNIT-3: WATER:** 3.1 Non-covalent interactions among bio-molecules in aqueous solvent 3.1.1 Hydrogen bonds 3.1.2 Ionic interactions 3.1.3 Hydrophobic interactions 3.1.4 Van der Waals interactions 3.2 Water as a reactant 3.3 Fitness of the aqueous environment for living organisms **UNIT-4: BUFFERS & pH:** 4.1 Ionization of water, weak acids and weak bases 4.2 pH scale 4.3 Types of buffers
Reference Books	1. Cox, M. M., & Nelson, D. L., (2017). *Lehninger: Principles of Biochemistry*, 7th Edition, W. H. Freeman, New York. 2. Powar, C. B., & Chatwal, G. R., (2011). *Biochemistry*, Himalaya Publishing House, India.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	BT-04
Course Title	Fundamentals of Genetics
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020

<table>
<tr><td>Purpose of Course</td><td>The purpose of this course is to be provide insights of fundamentals related to genetics which is one of the important subject of biotechnology course.</td></tr>
<tr><td>Course Objective</td><td>To provide basic laws of inheritance which are the keys to understand human genetics</td></tr>
<tr><td>Course Outcomes</td><td>CO1: This unit deals with basic concept of genome and its organization. This unit is foundation of the genetics course and expected outcome is to know how this science came into existence with the contribution of several scientist
CO2: Second unit is Chromosomes & Nucleosomes. Students get insight to finer details of genetic material. Expected outcome is to understand how different regions of chromosome responsible for inheritance
CO3: Third unit is related to Large scale chromosomal changes. In this unit students would be imparted with aspects related to structure and number of chromosomes.
CO4: Fourth unit is about Patterns of inheritance in humans. Expected outcome of this unit would be information about the cause of several genetic disorders which are prevalent among humans. Importance of genetic counselling would be understood for prevention of them in society.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td><td>PSO6</td></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Pre-requisite</td><td>Basic Science</td></tr>
<tr><td>Course Content</td><td>UNIT-1: CONCEPT OF GENOME AND ITS ORGANIZATION:
1.1 Mendel’s discoveries
1.2 History of genetics
1.3 DNA as genetic material
1.3.1 Griffith’s Transformation Experiment
1.3.2 Avery’s experiment
1.3.3 Hershey-Chase Experiment
UNIT-2: CHROMOSOMES & NUCLEOSOMES:
2.1 Euchromatin and Heterochromatin
2.2 Nucleosome-subunit of all chromatin
2.3 Banding Patterns in chromosomes
2.4 Lampbrush & Polytene chromosomes
UNIT-3: LARGE-SCALE CHROMOSOMAL CHANGES:
3.1 Euploids & Aneuploids
3.2 The concept of gene balance
3.3 Deletions & Duplications
3.4 Reciprocal & Robertsonian translocations
UNIT-4: PATTERNS OF INHERITANCE IN HUMANS:
4.1 Pedigree analysis of autosomal recessive disorders
4.2 Pedigree analysis of autosomal dominant disorders
4.3 Pedigree analysis of X-linked dominant and recessive disorders
4.4 Y-linked inheritance
4.5 The Hardy-Weinberg Law</td></tr>
<tr><td>Reference Books</td><td>1. Griffiths, A. F., Wessler, S. R., Lewontin, R. C. and Carroll, S. B. (2008) Introduction to Genetic Analysis, 9th Edition, W. H. Freeman and Company, New York.
2. Klug, W. S. and Cummings, M. R. (2007) Concepts of Genetics, 7th Edition, Pearson Education.</td></tr>
</table>

Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	**Practical Core 1: BTP-02:**
Course Title	Biotechnology practical
Credit	2
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	To provide hand's on experience of using instruments in the laboratory for biotechnology purpose.
Course Objective	Biotechnology is practical based course so main objective of this course is to acquaint students about how to make different solutions, buffers and solve problems based on Mendelian genetics
Course Outcomes	CO1: To learn how to prepare different solutions of different concentrations. CO2: To learn how to prepare stock and working solutions. CO3: To learn how to prepare different buffers used in biotechnology practical's. CO4: To learn how determine the Acid value. Outcome would be to know the importance of fats and oils by their acid values. CO5: To learn how to use pH meter and calibrate it. CO6: This group of practical's is based on course Fundamentals of Genetics. Outcome of those would be to know the contribution of various scientists in this field as well as to solve problems related to Mendelian genetics.
Mapping between COs with PSOs	
Pre-requisite	Basic science
Course Content	1. Preparation of normal, molar and molal solutions 2. Preparation of stock and working solutions 3. Preparation of buffer (Phosphate, Glycine-NaOH, Glycine-HCl) 4. Determination of acid value of fats and oils by titration with KOH 5. Calibration of pH meter 6. Identification of eye colour in Drosophila 7. Contribution of scientists in the field of genetics 8. Study of permanent slides/photographs of banding techniques 9. Problems related to Mendelian genetics

	10. Pedigree analysis of human genetic disorders
Reference Books	1. Patel RJ, Patel KR. Experimental microbiology Part II. Aditya Publication, Ahmedabad. 2016. 2. K.R .Aneja Experimental in Microbiology plant Pathology and Biotechnology. 3. Abhijit Dutta Experimental Biology A laboratory manual.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

M. Sc. Integrated Biotechnology III and IV

Name of Program	**M. Sc. Integrated Biotechnology**
Abbreviation	**BT**
Duration	**3 Years**
Program Structure	Semester III

Course Code	**Title**	**Teaching per week**		**Course Credits**	**University Examination**		**Internal Marks**	**Total Marks**
		Theory	**Practical**		**Duration**	**Marks**		
	Foundation Compulsory	2	0	2	2 Hrs	50	20	70
	Generic Elective	2	0	2	2 Hrs	50	20	70
	Core 1	6	6	6	2 +2Hrs	50	20	70
	Core 2	6	6	6	2+2 Hrs	50	20	70
	Foundation Elective	2	0	2	2 Hrs	50	20	70
	BTP 06	0	6	3	2 x 4 Hrs	60	60	120
	MBP 304	0	6	3	2 x 4 Hrs	60	60	120
	Total	18	24	24	30 Hrs	370	220	590

Program Structure	Semester IV

Course Code	**Title**	**Teaching per week**		**Course Credits**	**University Examination**		**Internal Marks**	**Total Marks**
		Theory	**Practical**		**Duration**	**Marks**		
	Foundation Compulsory	2	0	2	2 Hrs	50	20	70
	Generic Elective	2	0	2	2 Hrs	50	20	70
	Core 1	6	6	6	2 +2Hrs	50	20	70
	Core 2	6	6	6	2+2 Hrs	50	20	70
	Foundation Elective	2	0	2	2 Hrs	50	20	70
	BTP 04	0	6	3	2 x 4 Hrs	60	60	120
	MBP 404	0	6	3	2 x 4 Hrs	60	60	120
	Total	18	24	24	30 Hrs	370	220	590

B.Sc. 3rd Semester

Course: 05: Instrumentation and Techniques

<table>
<tr><td>Course Code</td><td>BT-05</td></tr>
<tr><td>Course Title</td><td>Instrumentation and Techniques</td></tr>
<tr><td>Credit</td><td>3</td></tr>
<tr><td>Teaching per Week</td><td>6 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>15 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective From</td><td>June 2019</td></tr>
<tr><td>Purpose of Course</td><td>The purpose of this course is to acquaint students about the principle and working of preliminary instruments used in biotechnology practical’s.</td></tr>
<tr><td>Course Objective</td><td>To provide basic knowledge of various techniques and instrumentation utilized in biotechnology course</td></tr>
<tr><td>Course Outcomes</td><td>CO1: This unit deals with Potentiometry. Here concept of pH and instrumentation details of pH meter is to be explained. Students would learn how to use, calibrate and take care of instrument.
CO2: Second unit is Separation & Measurement Techniques. Important details about various separation techniques in chromatography as well as use of radioactivity in detection of biomolecules are discussed.
CO3: Third unit is about Centrifugation Principles of centrifugation help students to use proper centrifuge and rotor specific to the work needed. Also how to maintain and take care of safety aspects while using the instrument in the laboratory.
CO4: Fourth unit is about Spectrophotometry. Students were explained about the law’s of photometry and different types of spectrophotometers. After learning these concepts students would able to perform the experiments with better understanding</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td><td>PSO6</td></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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</td></tr>
<tr><td>Pre-requisite</td><td>12th Science with Biology Subject</td></tr>
<tr><td>Course Content</td><td>UNIT-1: POTENTIOMETRY
1.1 pH Electrode: Reference electrode, Glass electrode, Combine electrode
1.2 Construction, operation and use of pH meter
1.3 Maintenance of electrodes
1.4 Ion selective meter and electrode for Ca+2, F-, Biomembrane electrode

UNIT-2: SEPARATION & MEASUREMENT TECHNIQUES
2.1 Classification of chromatography & general principles
2.2 Principles of Paper chromatography and Thin Layer Chromatography
2.3 Development methods
2.4 Detection, measurement and use of radioactivity in Biology:
2.4.1 Geiger-Muller counter: working principle and application
2.4.2 Scintillation counter: working principle and application</td></tr>
</table>

	2.4.3 Autoradiography: Techniques and applications **UNIT-3: CENTRIFUGATION** 3.1 Basic principles of sedimentation, Types of centrifuges and rotors 3.2 Separation methods in preparative ultracentrifuges: 3.2.1 Differential centrifugation 3.2.2 Density gradient centrifugation 3.2.3 Analysis of sub cellular fractions 3.3 Application of analytical ultracentrifuge: 3.3.1 Determination of relative molecular mass 3.3.2 Estimation of purity of macromolecules 3.3.3 Conformational changes in macromolecules 3.4 Safety aspects in use of centrifuge **UNIT-4: SPECTROPHOTOMETRY** 4.1 Molecular absorption spectroscopy and Laws of photometry 4.2 Colorimeter : Components of the instrument and applications 4.3 Spectrophotometer: Single beam and double beam instrument and applications 4.4 Quantitative analysis by spectrophotometer-manual and automated
Reference Books	**REFERENCES:** 1. Keith Wilson &john walker (ED) (2000): Practical biochemistry-principle & Techniques. Cambridge university press. 2. Skoog , Holler and Nieman, Industrial analysis-Saunders college publication 3. Skoog, West and Holler, fundamentals of analytical chemistry- Saunders college publication 4. James S. Fritz & George H. Schenk, Jr. (1969): Quantitative analytical chemistry (2nd edition). Allyn &Bacon, Inc., Boston. 5. Brown S.B (1980): An Introduction to spectroscopy for biochemists. Academic press London. 6. E.D.P.De Robertis& E.M.F. De Robertis Jr.(2001): Cell and Molecular Biology (8th edn) Lippincott Williams & Wilkins, London 7. Robards K. Haddad P. R. & Jackson P.E. (1994): Principles and Practice of modern chromatographic methods. Academic press London
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: 06: Mammalian Anatomy and Physiology

Course Code	**BT-06**
Course Title	**Mammalian Anatomy and Physiology**
Credit	3
Teaching per Week	6 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The Purpose of Course is to make students aware regarding many Anatomical and Physiological processes of many systems in Mammals.

Course Objective	To make students acquainted with concepts regarding structure and functions of various systems in Mammals.
Course Outcomes	CO1: Explains students the structure of Muscles in Mammals, their structure and physiology. It also explains the Cardiac physiology. Students gets knowledge regarding the working of muscles and Heart. CO2: The students gets information regarding the structure and function of Nervous system. They are also taught regarding the different kinds of Neurotransmitter, Reflex activities and how the signal pasees at synapses. CO3: Explains in detail the physiology of Reproductive system in Mammals. Students gets the knowledge regarding the process of formation of Gametes and Fertilization. CO4: It also explains the physiology and products of Clevage. CO5: This Course also gives the detail knowledge of various Endocrine glands, their structure and function.
Mapping between COs with PSOs	
Pre-requisite	Basic science

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■					
CO2	■		■			
CO3	■	■	■		■	
CO4		■	■	■		■
CO5	■		■		■	■

Course Content	**UNIT-1: MUSCLE PHYSIOLOGY & CARDIO-VASCULAR SYSTEM** 1.1 Structure & Types of Muscles 1.2 Structure & Internal Anatomy of Heart 1.3 Organization & Microscopic anatomy of Skeletal Muscle Fiber 1.4 Sliding Filament Mechanism of Skeletal Muscle Fibers 1.5 Cardiac cycle & Cardiac Output **UNIT-2: NEUROPHYSIOLOGY** 2.1 Structure & types of Neurons & Nerve Fibers 2.2 Neurotransmitters 2.3 Reflex Activities 2.4 Electrical Signals in Neurons 2.5 Synapse & Signal transmission at Synapse **UNIT-3: EMBRYOLOGY & REPRODUCTIVE SYSTEM** 3.1 Structure of Testis & Ovary with role of their hormones 3.2 Spermatogenesis & Oogenesis 3.3 Fertilization 3.4 Characteristics, Planes, Physiology & Products (Morula, Blastula & Gastrula) Of Cleavage 3.5 Female Reproductive Cycle **UNIT-4: ENDOCRINOLOGY** 4.1 Introduction to Endocrine Glands & Hormones 4.2 Pituitary Gland – Structure, Hormones & their functions 4.3 Thyroid & Parathyroid Glands - Structure, Hormones & their functions 4.4 Adrenal Gland – Structure, Hormones & their functions 4.5 Pancreas – Structure, Hormones & their functions

Reference Books	**REFERENCES:** 1. Anatomy & Physiology – G. J. Tortora & B. Derrickson, Wiley Pub. 2. Medical Physiology – Guyton & Hall, Saunders Elsevier Pub. 3. Essentials of Medical Physiology – K. Sembulingam & P. Sembulingam, Jaypee Brothers Medical Pub. 4. Chordate Embryology - P. S. Verma & V. K. Agarwal, S. Chand Pub. 5. Developmental Biology – S. F. Gilbert, Palgrave Macmillan Pub.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: 07: PLANT MORPHOLOGY AND PHYSIOLOGY

Course Code	**BT-07**
Course Title	**PLANT MORPHOLOGY AND PHYSIOLOGY**
Credit	3
Teaching per Week	6 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The purpose of the course is to make the student to get basic knowledge about plant, relations among plant & water, some metabolic processes occurs in plants & also get information regarding growth & amp regulation of nutrients in plants.
Course Objective	To give an overview of plant system – Root & shoot system To Describe the Structure of seed & chloroplast To explain the Modification of root , Fertilization & Germination of Seed To explain role of different nutrients in plants.
Course Outcomes	CO1: Students knows different system of the plant & also gets Knowledge Of the parts of the plants. CO2: Students gets knowledge related water, relation of plant -Water. CO3: Students gets idea about different pathways some metabolic process in plants. CO4: They also knows growth & regulation of the plants .
Mapping between COs with PSOs	
Pre-requisite	Basic science

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■		■					
CO3	■	■	■		■			
CO4		■	■	■		■	■	■
CO5	■		■		■	■		
CO6	■	■		■		■	■	■

Course Content	**UNIT-1: PLANT MORPHOLOGY** 1.1 Shoot system - Parts and functions 1.2 Root system- types, functions and modifications 1.3 Flower- Parts, functions, types of fertilizations, fruit formation. 1.4 Seed-Types, basic structure. Germination- types, factors necessary for germination. **UNIT-2: PLANT-WATER RELATIONS** 2.1 Water relations- Diffusion, Osmosis, water potential and its components 2.2 Turgor pressure, Wall pressure and interrelationship. 2.3 Ascent of sap-Theories 2.4 Transpiration - types, Mechanism of opening and closing of stomata, factors influencing transpiration rate. **UNIT-3: METABOLIC PROCESSES** 3.1 Structure of chloroplast; Action spectra, Photophosphorylation. 3.2 Pathways of carbon fixation- C3, C4, CAM pathway; Significance of Carbon fixation. 3.3 Photorespiration and its significance 3.4 Mineral salt absorption- Passive absorption and active absorption. **UNIT-4: GROWTH AND REGULATION** 4.1 Mineral nutrition: Macro, and micronutrients, their role, deficiency symptoms. 4.2 Growth pattern and kinetics, Physiological role of Phytohormones- Auxins, Kinetin, Gibberellins, ABA and Ethylene: Their applications. 4.3 Concept of photomorphogenesis -Phytochrome system, Photoperiodism. 4.4 Vernalization, Florigen concept.
Reference Books	**REFERENCES:** 1. A. C. Dutta 6th Edition, Botany for Degree Students *Publisher*: Oxford. 2. Frank B. Salisbury and Cleon W. Ross (2010), Plant Physiology, Cengage learning products, India Edition. 3. S. K. Verma and Mohit Verma (1999) Plant Physiology Biochemistry and Biotechnology, S. Chand. 4. Lincoln Taiz and Eduardo Zaiger (4th Edition), Plant Physiology, Sinqaur Associates Inc. Publishers. 5. S. N. Pandey and K. K. Singh, Plant physiology, Vikas Pub.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: 03: BTP-03: Biotechnology Practical

Course Code	**BT-03**
Course Title	**Biotechnology Practical**
Credit	3
Teaching per Week	6Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019

Purpose of Course	To provide hand's on experience of using instruments in the laboratory for biotechnology purpose.
Course Objective	Biotechnology is practical based course so main objective of this course is to acquaint students about how to use laboratory instruments, perform cell counting and other basic details.
Course Outcomes	CO1: To learn how to prepare different solutions and calibration of pH. Outcome would be how to handle pH meter CO2: To learn how to count cells and use binocular microscope. Outcome would be how to use haemocytometer. CO3&CO4: To learn how to use centrifuge and spectrophotometer. Outcome would be how to analyze biomolecules CO5: To learn Paper chromatography technique. Outcome would be how to perform separation of different biomolecules. CO6: To learn working of different instruments, understand difference between Reaction Time & Reflex action as well different stages of differentiation. Outcome would be to know principles on which different instrument works. CO7: These practical's are related to Botany in which student learn about study of plasmolytic method, photosynthesis, differences in C3 and C4 plants. Outcome would be to know how to determine OP and learn that oxygen evolves during phosynthesis.
Mapping between COs with PSOs	
Pre-requisite	Basic science

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■					
CO2	■		■			
CO3	■	■	■		■	
CO4		■	■	■		■
CO5	■		■		■	■
CO6	■	■		■		■
CO7	■	■		■		■

Course Content	1. Preparation of working solutions as well as different buffers and calibration of pH meter. 2. Study of Binocular Microscope and cell count by Haemocytometer. 3. To study the working of Centrifuge. 4. To study the working of Spectrophotometer. 5. Paper chromatography for separation of amino acids. 6. To study use & working of Electrocardiogram (ECG), Electroencephalogram (EEG), Sphygmomanometer, Electromyogram & Kymograph Apparatus. 7. To study Reaction Time & Reflex Action. 8. To study planes of cleavage, morula, blastula & gastrula with the help of permanent slides/charts/photographs. 9. Determination of osmotic potential of cell sap by plasmolytic method.

	10. Comparatively anatomical studies of C3 and C4 plants. 11. Experiment to show that oxygen is evolved during photosynthesis. 12. To compare the loss of water from two surfaces of leaf by: a) CoCl2 method b) Four leaf method
Reference Books	1. Patel RJ, Patel KR. Experimental microbiology Part II. Aditya Publication, Ahmedabad. 2016. 2 Abhijit Dutta Experimental Biology A laboratory manual.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

B.Sc. 4rd Semester

BT-08: FUNDAMENTALS OF MYCOLOGY

Course Code	**08**
Course Title	**FUNDAMENTALS OF MYCOLOGY**
Credit	3
Teaching per Week	6Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The purpose of the course is to provide insights about basics of fungal kingdom, morphology, characteristics, relationship and applications
Course Objective	To acquaint students with the concepts of mycology (study of fungi)
Course Outcomes	CO1: To acquaint students with classification of fungal kingdom, characteristics of fungi and morphology. CO2: To elaborate on fungal physiology and differentiation. Students will gain insights on fundamentals of fungal growth requirements, cellular reproduction, mould-yeast dimorphism etc. CO3: Students will acquire concepts of control of fungal growth. Provide insights of management of environmental and biological factors, mode of action of anti-fungal agents and brief idea about fungal infections in humans. CO4: Students will gain fundamentals of fungal relationships like parasitism, symbiosis, saprotrophism. Students will acquire knowledge pertaining to role of biotechnology in mycology.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						

	CO3 ■ ■ ■ ■ ■ ■ CO4 ■ ■ ■ ■ ■ ■
Pre-requisite	Basic science

Course Content	**UNIT-1: INTRODUCTION** **1.1** Place of fungi in 'tree of life'. **1.2** Characteristics of fungi. **1.3** Morphology of yeasts and filamentous fungi. **1.4** Classification of fungi. **1.5** Life cycle of the yeast *Saccharomyces* and filamentous Ascomycetes. **UNIT-2: FUNGAL PHYSIOLOGY & DIFFERENTIATION** **2.1** Physical & Chemical requirements for growth. **2.2** Fungal cultivation media. **2.3** Cellular reproduction. **2.4** Mould-yeast dimorphism. **2.5** Sclerotia & Nutrient –translocating organs. **UNIT-3: CONTROL OF FUNGAL GROWTH** **3.1** Management of environmental and biological factors. **3.2** Biological and chemical control. **3.3** Cellular targets of antifungal agents. **3.4** Fungicides for plant disease control. **3.5** Control of fungal infections of humans. **UNIT-4: APPLIED MYCOLOGY** **4.1** Fungal parasites and symbionts of plants. **4.2** Fungal pathogens of humans. **4.3** Fungal parasites as biological control. **4.4** Fungal saprotrophs. **4.5** Fungi in Biotechnology and Case study-Hepatitis B vaccine.
Reference Books	**REFERENCES:** 1. Deacon, J. (2007). *Fungal Biology*. 4th Ed., Blackwell Publishing. 2. Kavanagh, K. Ed. (2006). *Fungi: Biology and Applications*. Wiley. 3. Wiley, J., & Sherwood, L. (2011). *Prescott's Microbiology*, 8th Ed., McGraw-Hill Science/Engineering/Math.
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

BT-09: FUNDAMENTALS OF IMMUNOLOGY

Course Code	**09**
Course Title	**FUNDAMENTALS OF IMMUNOLOGY**
Credit	3
Teaching per Week	6 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019

Purpose of Course	The Immunology course aims to provide an adequate understanding about the fundamentals of the immune system and the students gain knowledge about the features and mechanisms of innate and adaptive immune response. Be able to compare and contrast the innate versus adaptive immune systems
Course Objective	To make students understand the organization of the immune system and host resistance against an invading organism. to provide students with a foundation in immunological processes
Course Outcomes	CO1: Explain students the insight of the immune system, physical barriers in non-specific resistance and organs and tissues of the immune system. A description of cells involved in the immune response either innate or acquired. CO2: Students gain understanding about processes of phagocytosis and inflammation. CO3: The course also explains the chemical mediators in non-specific resistance like cytokines, complement, acute-phase proteins and antimicrobial peptides. CO4: To provide an adequate knowledge about antigens, T cell biology, types of specific immunity and recognition of foreignness. CO5: To gain a deep knowledge about B cell biology, Immunoglobulin structure, function and classes. CO6: Explain students how antibodies take action, antibody kinetics and generation of antibody diversity.
Mapping between COs with PSOs	
Pre-requisite	Basic science

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■					
CO2	■		■			
CO3	■	■	■		■	
CO4		■	■	■		■
CO5	■		■		■	■
CO6	■	■		■		■

Course Content	**UNIT 1: INTRODUCTION TO IMMUNE SYSTEM** 1.1 Overview of host resistance 1.2 Cells of the immune system 1.3 Organs and Tissues of the immune system 1.4 Physical barriers in non-specific resistance **UNIT 2: NON-SPECIFIC HOST RESISTANCE** 2.1 Phagocytosis 2.2 Inflammation 2.3 Chemical mediators in non-specific (Innate) resistance 2.3.1 Antimicrobial peptides 2.3.2 Complement 2.3.3 Cytokines 2.3.4 Acute-Phase proteins **UNIT 3: SPECIFIC HOST RESISTANCE-I** 3.1 Overview of specific immunity 3.2 Antigens 3.3 Types of specific immunity 3.4 Recognition of Foreignness 3.5 T Cell Biology **UNIT 4: SPECIFIC HOST RESISTANCE-II** 4.1 B cell Biology

	4.2 Immunoglobulin Structure, Function and Classes 4.3 Generation of Anitbody Diversity 4.4 Antibody kinetics 4.5 Action of Antibodies
Reference Books	**REFERENCES:** 1. Willey, J. M., Sherwood, L. M., & Woolverton, C. J., (2008). *Prescott, Harley & Klein's Microbiology*, 7Ed, The McGraw-Hill Companies, Inc.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

BT-10: INTRODUCTION TO MOLECULAR BIOLOGY

Course Code	**BT-10**
Course Title	**INTRODUCTION TO MOLECULAR BIOLOGY**
Credit	3
Teaching per Week	6 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The purpose of this course is to impart students the basic principles, concepts and mechanisms about genetic material.
Course Objective	To introduce to the students how DNA replicates, mutates, repairs and recombine in both prokaryotic and eukaryotic organisms
Course Outcomes	CO1 : This unit deals with DNA replication. Outcome of this would be that students would be aware of how replication of genetic material occurs and mechanisms which regulate this mechanism CO2 : Second unit is DNA mutations and Repair. Knowledge about how DNA gets mutated and repaired would be imparted to the students. CO3 : Third unit is about Molecular recombination and Gene Transfer-I. The outcome would be the knowledge of recombination, transposable elements and plasmids at molecular level. CO4 : Fourth unit is extension of third unit with more details. Expected outcome of the unit would be the knowledge about important events like conjugation, transformation and transduction in prokaryotes.
Mapping between COs with PSOs	
Pre-requisite	Basic Science

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■	■				■
CO2		■	■	■	■	■
CO3	■				■	■
CO4	■		■	■		

Course Content	**UNIT-1: DNA REPLICATION** 1.1 General features of DNA replication 1.2 Replication in prokaryotes 1.3 Replication in eukaryotes 1.4 Termination of replication

	1.5 Regulation of replication **UNIT-2: DNA MUTATIONS AND REPAIR** 2.1 Chemical basis of mutations 2.2 Spontaneous and Induced mutations 2.3 Effect of mutations 2.4 Detection and Isolation of mutants 2.5 DNA repair **UNIT-3: MOLECULAR RECOMBINATION AND GENE TRANSFER-I** 3.1 Introduction to recombination and recombination in eukaryotes 3.2 Horizontal gene transfer in prokaryotes 3.3 Recombination at molecular level 3.4 Transposable elements 3.5 Bacterial plasmids **UNIT-4: MOLECULAR RECOMBINATION AND GENE TRANSFER-II** 4.1 Bacterial Conjugation 4.2 Bacterial Transformation 4.3 Transduction 4.4 Development of antibiotic resistance in bacteria 4.5 Mapping the genome
Reference Books	**REFERENCES:** 1. Willey, J. M., Sherwood, L. M., & Woolverton, C. J., (2008). *Prescott, Harley & Klein's Microbiology*, 7Ed, The McGraw-Hill Companies, Inc.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

BTP-04: Biotechnology Practical

Course Code	**BT-04**
Course Title	**Biotechnology Practical**
Credit	3
Teaching per Week	6 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	To give basic practical knowledge of mycology immunology,biotechnogy and biochemistry
Course Objective	Students develop basic practical skills for above subjects
Course Outcomes	CO1 :basic skill for fungal growth and identification CO2 : basic knowledge about blood grouping CO3 : are able to identify different types of blood cells CO4 : makes able the students for quantitative biochemistry experiment CO5; make student able to understand basic biotechnology skills
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						

	CO2 ■ ■ ■ ■ ■ ■ CO3 ■ ■ ■ ■ ■ ■ CO4 ■ ■ ■ ■ ■ ■ CO5 ■ ■ ■ ■ ■ ■
Pre-requisite	Basic Science

Course Content	1. Cultivation and identification of moulds on different mycological media. 2. Isolation and cultivation of yeast. 3. Study of different spores produced by *Puccinia graminis* using permanent slides. 4. Isolation of plant pathogenic fungi from the Red Rot of Sugarcane. 5. Differential Count of blood leucocytes. 6. Diagnosis of Syphilis by Rapid Plasma Reagin (RPR) Test. 7. Study of Haemagglutination in blood grouping. 8. Extraction of bacterial plasmid by alkaline lysis method. 9. Isolation of Prokaryotic DNA. 10. Estimation of DNA by DPA method. 11. Estimation of RNA by Orcinol method. 12. Study of pigmentation mutation in *Serratia marcescens*
Reference Books	1. Patel RJ, Patel KR. Experimental microbiology Part II. Aditya Publication, Ahmedabad. 2016. 2. S.K.Sawhney Randhir Singh Introductory practical Biochemistry.
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

M. Sc. Integrated Biotechnology V to VI

Name of Program	**M. Sc. Integrated Biotechnology**
Abbreviation	**BT**
Duration	**3 Years**

Medium of Instruction		English						
Program Structure		Semester V						
Course Code	**Title**	**Teaching per week**		**Course Credits**	**University Examination**		**Internal Marks**	**Total Marks**
		Theory	**Practical**		**Duration**	**Marks**		
	Foundation Compulsory	2	0	2	2 Hrs	50	20	70
	Generic Elective	2	0	2	2 Hrs	50	20	70
	Core 1	12	0	12	2x6 Hrs	50	20	70
	Foundation Elective	2	0	2	2 Hrs	50	20	70
	BTP 05	0	12	6	3 × 5 Hrs	120	120	240
	Total	18	12	24	33 Hrs	320	200	520
Program Structure		Semester VI						
Course Code	**Title**	**Teaching per week**		**Course Credits**	**University Examination**		**Internal Marks**	**Total Marks**
		Theory	**Practical**		**Duration**	**Marks**		
	Foundation Compulsory	2	0	2	2 Hrs	50	20	70
	Generic Elective	2	0	2	2 Hrs	50	20	70
	Core 1	12	0	12	2x6 Hrs	50	20	70
	Foundation Elective	2	0	2	2 Hrs	50	20	70
	BTP 06	0	12	6	3 × 5 Hrs	120	120	240
	Total	18	12	24	33 Hrs	320	200	520

Course Code	**BT-11**
Course Title	**Immunotechnology**
Credit	2
Teaching per Week	2
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020

<table>
<tr><td>Purpose of Course</td><td>The course of immunotechnology aims at the application of basic aspects of the immune system for diagnostics and therapeutics as well as the generation of vaccines for different diseases of mankind.</td></tr>
<tr><td>Course Objective</td><td>To learn about the production of various diagnostic tools like monoclonal antibodies and other methods that involves the immune system for disease detection.
To learn about various types of autoimmune disorders and a variety of vaccines.</td></tr>
<tr><td>Course Outcomes</td><td>CO1 : The unit covers techniques used in the generation and application of monoclonal antibodies for disease diagnosis and therapeutic purposes.
CO2 : Students will learn about various types of antigen-antibody reactions as well as analytical techniques used in the field of clinical/serological diagnosis.
CO3 : The unit gives a brief account of various types of hypersensitivity reactions, various types of disorders generating due to hypersensitivity reactions, autoimmune diseases types and examples, immunodeficiency disorders.
CO4 : This unit focuses on different types of vaccines: their production and application as a preventive means against various infections.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td><table>
<tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td><td>PSO6</td></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>Pre-requisite</td><td>Basic Science</td></tr>
<tr><td>Course Content</td><td>UNIT-1: MONOCLONAL ANTIBODIES
1.1 Hybridoma Technology
1.2 Myeloma tumours
1.3 Procedure for generation of hybridomas
1.4 Human monoclonal antibodies
1.5 Chimeric Monoclonal Antibodies
1.6 Application of monoclonal antibodies
1.7 Monoclonal antibodies as Abzymes

UNIT-2: TECHNIQUES USED IN DIAGNOSIS
2.1 Precipitation
2.2 Agglutination
2.2.1 Haemaglutination
2.2.2 Bacterial agglutination
2.2.3 Passive agglutination
2.2.4 Agglutination inhibition
2.3 ELISA
2.4 Radioimmunoassay
2.5 Immunofluorescence
2.6 Immunochromatography 3

UNIT-3: HYPERSENSITIVITY & IMMUNE DISEASES
3.1 Hypersensitivity Type I, II, III & IV
3.2 Autoimmune diseases: Introduction, Types, Insulin Dependent Diabetes Mellitus and Rheumatoid Arthritis
3.3 Immunodeficiency: Introduction, Types, Severe Combined Immunodeficiency
UNIT-4: VACCINES
4.1 Attenuated and killed vaccines</td></tr>
</table>

	4.2 Subunit vaccine (Toxoids, Capsule polysaccharides, Glycoproteins) 4.3 Multivalent subunit vaccine 4.4 DNA vaccine 4.5 Recombinant vector vaccine
Reference Books	Kuby Immunology –Janis Kuby, Kindst, Gatsby And Osborne, 6th Edition, W. H. Freeman Publications. Immunology And Immunotechnology- Ashim Chakravarty, Oxford University Press, ISBN-13: 978-0-19-567688-4 Microbiology- Lansing Prescott, John P. Harley, Donald A. Klein, 8th Edition, Mcgraw Hill Publication. Principles and Techniques of Biochemistry and Molecular Biology, Keith Wilson and John Walker, 7th Edition, Cambridge University Press.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	**BT-12**
Course Title	**Clinical Hematology**
Credit	2
Teaching per Week	2
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	This course will introduce the study of the hematopoietic system including the relationship of hematologic diseases to diagnostic characteristics.
Course Objective	• Fundamental understanding of blood and related diseases. • Explain the importance of cellular or morphological characteristics of blood cells. • Differentiate and enumerate cells on a peripheral blood smear. • Explain the principles and methods of each test performed in the laboratory and the clinical significance.
Course Outcomes	CO1: Students will understand the cause, prognosis, treatment and prevention of diseases related to study. CO2: Students can focus on study of various tests of blood. For example, CBC (Complete Blood Count) test, this gives information on red blood cells, white blood cells and platelets. To make the proper functioning of the body, each type of blood cells need to perform well, and they have their own set of functions. CO3: The unit immunohematology, ABO blood groups, its types and importance of blood grouping specially for blood transfusion. CO4: The unit focuses on blood banking- it is the process that takes place in the laboratory to make sure that donated blood or its products which are safe before they are used in blood transfusions. Students will study about various components of blood, blood donors and various tests done in blood banking.

Mapping between COs with PSOs	<table><tr><th></th><th>PSO1</th><th>PSO2</th><th>PSO3</th><th>PSO4</th><th>PSO5</th><th>PSO6</th></tr><tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>
Pre-requisite	Basic Science
Course Content	**UNIT-1: Introduction to Hematology** 1.1 Introduction to hematology and blood 1.2 Hematopoietic system 1.3 Hemoglobin derivatives 1.4 Classification of Anemia 1.5 Laboratory tests in iron deficiencies 1.6 The Thalassemia **UNIT-2: Methods in Clinical Hematology** 2.1 Complete blood count 2.2 Complete hemogram 2.3 Collection of blood and anticoagulants 2.4 Routine hematology laboratory experiments 2.5 Hematology histograms **UNIT-3: Immunohaematology** 3.1 Routine ABO Testing and ABO Antibodies 3.2 Inheritance of ABO Blood Groups 3.3 The Bombay Phenotype 3.4 Rh System: History, Molecular genetics and Clinical considerations 3.5 Introduction to ISBT blood group systems 3.6 The Cross matching tube test **UNIT-4: Blood Banking** 4.1 Introduction to blood transfusion 4.2 Collection of blood from donor 4.3 Transfusion medicine 4.4 Selection of blood components 4.5 Use of blood derivatives; blood and blood component transfusions 4.6 Techniques used for the separation of blood constituents
Reference Books	1. Godkar P, Godkar D. Textbook of Medical Laboratory Technology. 3rd Edition. Mumbai: Bhalani Publishing House; 2014. 2. Harmening D. Modern blood banking & transfusion practices. New Delhi: Jaypee; 2013.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

<table>
<tr><td>Course Code</td><td>BT-13</td></tr>
<tr><td>Course Title</td><td>Nanobiotechnology</td></tr>
<tr><td>Credit</td><td>2</td></tr>
<tr><td>Teaching per Week</td><td>2</td></tr>
<tr><td>Minimum weeks per Semester</td><td>15 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective From</td><td>June 2020</td></tr>
<tr><td>Purpose of Course</td><td>This is fundamental course to bridge areas in physics, chemistry and biology. It provides an introduction to the emerging field of bio-nanotechnology. It introduces concepts in nano-materials and their use with bio-components to synthesize and address larger systems.</td></tr>
<tr><td>Course Objective</td><td>• To equip the students with the concepts of biotechnology required for understanding the behaviour of nano-materials and biomaterials.
• To foster the knowledge, how modern research is harnessing biological systems to further nanotechnological endeavour.
• How modern science is gaining knowledge from natural systems that construct and control at the nanoscale.
• How general principles of structure and function within biological systems are used to construct functional devices within nanotechnology.</td></tr>
<tr><td>Course Outcomes</td><td>CO1: Comprehend the concept of "nanotechnology" and its interdisciplinary aspects. Learn basic properties of nanomaterials. Identify different types of nano materials and its applications.
CO2: Learn various approaches of synthesizing nanomaterials, their advantages and limitations. Understand the mechanism of preparation of variety of nanomaterial. Choose the suitable method of synthesis for further applications.
CO3: Analyze different types of DNA based Nanostructures. Know the importance of bio-mimicry to fabricate protein based nanoarchitecture.
CO4: Learn about recent development in the area of devices and therapy. Learn about nano diagnostics. Identify the application of carbon nanostructure for different day-to-day applications.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td><td>PSO6</td></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>Pre-requisite</td><td>Basic Science</td></tr>
<tr><td>Course Content</td><td>UNIT-1: INTRODUCTION TO NANOTECHNOLOGY & NANOBIOTECHNOLOGY
1.1 Introduction to Nano-world
1.2 Types and properties of nanomaterials
1.3 Introduction to nanobiotechnology
1.4 Dominion of biological machines
UNIT-2: SYNTHESIS OF NANOMATERIALS
2.1 Approaches for synthesis of nanoparticles
2.2 Techniques for synthesis of nanostructures
2.3 Self-assembly techniques
2.4 Introduction to biosynthesis
2.5 What is biosynthesis? Why biosynthesis?
UNIT-3: MOLECULAR NANOTECHNOLOGY
3.1 Mastering the complex DNA nanostructure
3.2 DNA tweezers</td></tr>
</table>

	3.3 DNA actuators 3.4 DNA scissors 3.5 Self-assembly of protein nanoarchitecture 3.6 Applications of protein nanostructures 7 **UNIT-4: APPLICATIONS OF NANOBIOTECHNOLOGY** 4.1 Application of carbon nanotubes in: 4.1.1 Diagnostic equipment 4.1.2 Surgical supplements 4.1.3 Tissue engineering 4.1.4 Gene delivery 4.1.5 Anti-carcinogenic activity 4.1.6 Drug delivery 4.1.7 Neurodegenerative disorder therapy 4.2 Use of liposomes 4.3 Photocatalysis of pollutants 4.4 Application in food and agriculture
Reference Books	1.Goodsell, David S. Bionanotechnology: Lessons from Nature. John Wiley & Sons, 2004. 2. Pradeep, T. A textbook of Nanoscience and Nanotechnology. Tata McGraw-Hill Education, 2003. 3. Sharon Madhuri et al Bio-nanotechnology, Ane Books Pvt. Ltd., 2012. 4.Kulkarni, Sulabha K. Nanotechnology: Principles and Practices. Springer, 2014. 5.Marulanda, Jose Mauricio, ed. Carbon Nanotubes: Applications on Electron Devices. BoD–Books on Demand, 2011.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	**BT-14**
Course Title	**Introduction to Molecular Biology-II**
Credit	2
Teaching per Week	2
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	It is an advanced level course for the graduate students which gives a detailed account on transcription and translation with their regulatory aspects and also includes content imparting knowledge about protein maturation and post translational modifications.
Course Objective	To fetch knowledge about fundamental processes in detail at Molecular level. To understand the biochemistry of regulatory mechanisms controlling these fundamental processes. To get an idea on post-translational modifications and global regulatory networks.

Course Outcomes	CO1: This unit covers the concept of genetic codes and their features. It explains more about the transcription occurring in Bacteria, Eukaryotes and Archaea. CO2: This unit emphasizes on synthesis of proteins, how are these proteins modeled to give a correct form. It also explains further about protein maturation and how these proteins are targeted to their destination on secretion. CO3: The unit highlights about the levels of regulation involved in RNA and protein synthesis. It gives information on processes like splicing and RNA editing. It explains about the role of ubiquitylation and chaperon mediated protein folding. CO4: This unit provides information about regulation of genes in viruses additionally. It talks more about global regulatory systems.
Mapping between COs with PSOs	
Pre-requisite	Basic Science
Course Content	**UNIT-1: TRANSCRIPTION AND GENETIC CODE** 1.1 Transcription in Bacteria 1.2 Transcription in Eukaryotes 1.3 Transcription in Archaea 1.4 Establishment of Genetic Code 1.5 Characteristics of Genetic Code **UNIT-2: TRANSLATION** 2.1 tRNA and amino acid activation 2.2 Ribosome Structure 2.3 Initiation of Protein Synthesis 2.4 Elongation and Termination of Protein Synthesis 2.5 Protein maturation and secretion **UNIT-3: REGULATION OF GENE EXPRESSION-I** 3.1 Levels of Regulation 3.2 Regulation of Transcription initiation 3.3 Regulation of Transcription elongation 3.4 Regulation of Translation 9 **UNIT 4: REGULATION OF GENE EXPRESSION-II** 4.1 Post-translational Regulation 4.2 Global regulatory systems 4.3 Regulation of gene expression in Eukarya and Archaea 4.4 Gene regulation in Bacteriophage λ
Reference Books	Willey, J. M., Sherwood, L. M. and Woolverton, C. J. (2008). Prescott, Harley and Klein's Microbiology, 7th Edition, McGraw Hill International Edition
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■					
CO2	■		■			
CO3	■	■	■		■	
CO4		■	■	■		■

Course Code	**BT-15**
Course Title	**Genetic Engineering**
Credit	2
Teaching per Week	2

<table>
<tr><td>Minimum weeks per Semester</td><td>15 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective From</td><td>June 2020</td></tr>
<tr><td>Purpose of Course</td><td>It is an entry-level course imparting knowledge of genetic engineering to use different molecular biology techniques in order to create genetic modifications in different kind of organisms.</td></tr>
<tr><td>Course Objective</td><td>• Fundamental understanding of importance, need and implication of rDNA technology
• To understand know-how’s of rDNA technology, its tools and techniques.
• To understand generation, insertion, identification, and confirmation of cloned genes into different organisms.</td></tr>
<tr><td>Course Outcomes</td><td>CO1: Students will develop an understanding on basic idea of gene cloning, its importance, types of enzymes used as tools in gene cloning as being prime players.
CO2: As being carriers of genes of interest, students will understand about different types of vectors and comparative advantages offered by each of them so that proper choice of vector can be done.
CO3: Students will gain knowledge about techniques to insert prepared clones into different organisms and identification of recombinants.
CO4: The unit focuses on and thus provides knowledge of different techniques to, first, identify and then further validation of recombinants.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td><td>PSO6</td></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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</td></tr>
<tr><td>Pre-requisite</td><td>Basic Science</td></tr>
<tr><td>Course Content</td><td>3. Course Content
UNIT-1: RECOMBINANT DNA TECHNOLOGY AND ENZYMES
1.1 What is gene cloning and its importance
1.2 Range of DNA manipulative enzymes
1.3 Restriction Endonucleases
1.4 Ligation enzymes
UNIT-2: CLONING VECTORS
2.1 Vectors based on Plasmids.
2.2 Vectors based on M13
2.3 Vectors based on Phage Lambda
2.4 Vectors for Yeasts and other Fungi
2.5 Vectors for higher plants
2.6 Vectors for animals
UNIT-3: TECHNIQUES USED IN GENETIC ENGINEERING-I
3.1 Transformation
3.2 Identification of recombinants
3.3 Insertion of phage DNA
3.4 Introduction of DNA to non-bacterial cells 11

UNIT-4: TECHNIQUES USED IN GENETIC ENGINEERING-II
4.1 Colony and Plaque Hybridization
4.2 Practical uses of hybridization probing
4.3 Polymerase Chain Reaction: Outline, Details, Studying products, Real-Time PCR
4.4 DNA Sequencing: Chain termination, Shotgun, Clone Contig methods</td></tr>
</table>

Reference Books	Brown TA. Gene cloning and DNA analysis: an introduction. John Wiley & Sons; 2016 Jan 19.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	**BT-16**
Course Title	**Bioethics, Biosafety and IPR**
Credit	2
Teaching per Week	2
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	Provide the basic knowledge regarding Bioethics, Biosafety and IPR.
Course Objective	• To acquaint, introduce & emphases students about Bioethics, Biosafety & IPR. • They will acquire adequate knowledge in the use of genetically modified organisms and its effect on human health, Stem cells, organ transplant etc. • They will gain more insights into the regulatory affairs & see the ethical side of scientific research. • They will be able to implement good lab practices & biosafety mechanisms.
Course Outcomes	CO1: To provide basic knowledge about concepts of Bioethics & Bio safety, their applications & significance. CO2: To provide awareness & understanding regarding ELSI of few of the latest research, technologies & advances of science & their impact on human life & society. CO3: Students will be made aware of different preventive methods & good biosafety practices. CO4: To inform students about IPR's basic & provide knowledge about different Acts, regulations, laws, policies etc.
Mapping between COs with PSOs	
Pre-requisite	Basic Science

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■					
CO2	■		■			
CO3	■	■	■		■	
CO4		■	■	■		■

Course Content	**UNIT-1: INTRODUCTION TO BIOETHICS AND BIOSAFETY** 1.1 Introduction and need of Bioethics and Biosafety 1.2 Applications of Bioethics 1.3 Applications of Biosafety 1.4 Bioethics and its relationship with other sciences 1.5 Levels of Biosafety (I to IV with respect to plant, animal and microbiology laboratories) **UNIT-2: INTRODUCTION TO ETHICAL, LEGAL AND SOCIAL IMPLICATIONS** 2.1 Human Genome Project 2.2 GMO: Foods & Crop 2.3 Stem Cell Research 2.4 Drug testing on Human volunteers 2.5 Organ transplantation **UNIT-3: BIOSAFETY** 3.1 Risk assessment 3.2 Containment 3.3 Handling and disposal of chemical hazardous waste 3.4 Handling and disposal of biological hazardous waste 3.5 Immunization and first aid for biotech laboratory workers **UNIT-4: INTELLECTUAL PROPERTY RIGHTS** 4.1 Introduction to IPR 4.2 Types of IPR 4.3 International framework for IP protection 4.4 GATT, WTO, WIPO and TRIPS 4.5 PVP and Farmers' Right 4.6 Prior Art 4.7 Patent Database: USPTO, EPO and IPO
Reference Books	Sateesh MK. Bioethics and biosafety. IK International Pvt Ltd; 2008 Aug 25. 1. Singh BD. Biotechnology expanding horizons. Kalyani publishers; 2007. 2. Ganguli P. Intellectual Property Rights: Unleashing the Knowledge Economy. Tata McGraw-Hill Publishing Company; 2001. 3. National IPR Policy | Department for Promotion of Industry and Internal Trade | MoCI | GoI [Internet]. Dipp.gov.in. 2020 [cited 19 June 2020]. Available from: https://dipp.gov.in/policies-rules-and-acts/policies/national-ipr-policy
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	**BTP-05**
Course Title	**Biotechnology Practical**
Credit	6
Teaching per Week	12
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020

<table>
<tr><td>Purpose of Course</td><td>Practicals are designed to address laboratory skills relevant to the fields of biochemistry, genetic engineering, clinical serology and hematology.</td></tr>
<tr><td>Course Objective</td><td>• To equip students with essential skills for the further explorations of bioterchnology research.
• To teach clincial laboratory skills of serology and hematology.</td></tr>
<tr><td>Course Outcomes</td><td>CO1: Fundametnal analytical skills for the assay of common biomolecules
CO2: Learning routine diagnostic methods in clinical serology
CO3: Learning common methods for the synthesis of metal nanoparticles and study their effect on cells
CO4: Learning essential laboratroy skills for genetic engineering
CO5: Skill of important tests performed in clinical haematology
CO6: Important experimental knowhow of dairy microbiology and virology experiments.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td><table><tr><th></th><th>PSO1</th><th>PSO2</th><th>PSO3</th><th>PSO4</th><th>PSO5</th><th>PSO6</th></tr><tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO5</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO6</td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>Pre-requisite</td><td>Basic Science</td></tr>
<tr><td>Course Content</td><td>1. Estimation of reducing sugars by Cole’s method
2. Estimation of reducing sugars by DNSA method
3. Estimation of proteins by Folin-Lowry method
4. Seperation of amino acids by TLC
5. Radial precipitation test (Mancini’s)
6. Detection of HIV by ELISA.
7. Detection of Hepatitis B surface antigen by direct ELISA.
8. Dreyer’s Tube test for diagnosis of Typhoid
9. Immunochromatography for diagnosis of Malaria/Typhoid.
10. Synthesis of AgNPs by using sodium citrate.
11. Synthesis of AgNPs by using fungal/bacterial methods.
12. In vitro study of antimicrobial activity of AgNPs against bacteria.
13. Isolation of plasmid DNA from E. coli.
14. Extraction and Purification of bacterial DNA using spin column.
15. Restriction digestion of plasmid vector.
16. Transformation of bacterial cells by CaCl2 method.
17. Blood Crossmatching test (Tube method)
18. Coombs Test (Indirect)
19. Study of milk quality by Methylene Blue Reduction Test
20. Enrichment and isolation of coliphages from sewage</td></tr>
<tr><td>Reference Books</td><td>1. Patel RJ, Patel KR. Experimental microbiology Part II. Aditya Publication, Ahmedabad. 2016.
2. Mu p Plummer DT. Introduction to Practical Biochemistry. Tata McGraw-Hill Education.</td></tr>
</table>

	3. Sambrrok J Fritsch EF Maniatis T. Molecular cloning a laboratory manual.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

B.Sc. 6 Semester

BT 17 Pharmaceutical Biotechnology

Course Code	**BT – 17**
Course Title	Pharmaceutical Biotechnology
Credit	2
Teaching per Week	2
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2020- 2021
Purpose of Course	The purpose of the course is intended to provide the student with a working knowledge of the preparation, stability and formulation of different protein and peptide drugs such as antisense agents, transgenic therapeutics etc. Current FDA approved biotechnology drugs such as human insulin; growth hormones etc. will be discussed.
Course Objective	1. The knowledge gained in this course would be used to understand and evaluate the different pharmaceutical parameters of the current and future biotechnology related drugs and products on the market. 2. Novel formulation approaches for better delivery of biotechnology derived drugs, such as nasal sprays, liposomes and biodegradable polymer will be addressed. 3. The delivery of peptides and proteins by the parenteral, oral, transdermal and nasal routes of administration will also be discussed. 4. Drug Designing and development will be discussed. The process of Pharmacokinetics and Pharmacodynamics will also be discussed. 5. The field of Regulatory affairs will also be addressed.
Course Outcomes	CO1: Students will able to gain basic idea of Drugs, Bio-Pharmaceuticals and role of Biotechnology. CO2: Students will get an idea on drug delivery methods and mechanism. CO3: Students will come across understanding effect of drug on body is and how it metabolized. CO4: Able to understand aim of regulatory concept, its scope and methodology of approval of drug along with the ICH guidelines.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

Pre-requisite	Basic Science
Course Content	**UNIT-1: PHARMACEUTICALS, BIOLOGICS & BIOPHARMACEUTICALS** 1.1 Introduction to pharmaceutical products 1.2 Biopharmaceuticals and pharmaceutical biotechnology 1.3 History of the pharmaceutical industry 1.4 The age of biopharmaceuticals 1.5 Biopharmaceuticals: Current status and future prospects **UNIT-2: DRUG DELIVERY & THERAPEUTICS** 2.1 Drug delivery 2.1.1 Liposome 2.1.2 Nasal spray 2.1.3 Biodegradable polymer 2.1.4 Osmotic 2.2 RNAi Therapeutics 2.3 Antisense Technology 17 2.4 Enzyme of Therapeutic value- Superoxide dismutase, DNAse 2.5 Hormone as therapy- Insulin **UNIT-3: DRUG DISCOVERY & DEVELOPMENT** 3.1 Drug discovery and development 3.2 Clinical pharmacology 3.3 Pharmakokinetics 3.4 Pharmacodynamics 3.5 Toxicology studies- Reproductive toxicity, Teratogenicity, Carcinogenicity **UNIT-4: REGULATORY AFFAIRS** 4.1 Food & Drug Administration 4.2 The investigational new drug application 4.4 Regulatory procedure 4.5 Role of regulatory affairs department 4.6 ICH guidelines
Reference Books	1. Walsh G. Pharmaceutical biotechnology: concepts and applications. John Wiley & Sons; 2013 Apr 25. 2. Rang HP. Drug Discovery and Development. Technology in Transition. 2012 Jul 20:3. 3. Ho RJ, Gibaldi M. Biotechnology and Biopharmaceuticals. Transforming Proteins and Genes into Drugs. 2003. 4. Jogdand SN. Medical biotechnology. Himalaya Publishing House; 2008. 5. Sobti RC, Pachouri SS. Essentials of biotechnology. Ane Books Pvt. Limited; 2009.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

BT 18 Introduction to bioinformatics

Course Code	**BT 18**
Course Title	Introduction to bioinformatics

Credit	2
Teaching per Week	2
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2020 -2021
Purpose of Course	The purpose of the course will give students an introduction to the basic techniques of Bioinformatics. Emphasis will be given to the application of bioinformatics and biological databases. The students will become familiar with the use of a wide variety of internet applications using sequence alignment tools, biological database and will be able to apply these methods in future studies and research work.
Course Objective	To make students more familiar with Bioinformatics. 1. To provide basic idea of Biological database and its types for the studies. 2. To study Homology, pairwise alignment and multiple sequence alignment and provide insight to perform comparative analysis of known and unknown sequences. 3. To create zest of learning and utilize NCBI web portal and Bioinformatics for better understanding of Biotechnology.
Course Outcomes	CO1 :The unit convey students about understanding of Bioinformatics and its component along with its utility in Biotechnology. CO2 :The unit will explore students towards biological database and its scope for study of literature and as well as metabolic pathway database. CO3 : The unit consider the pairwise sequence alignment and explain the analysis of concept of similarity along with tools. CO4 : The unit consider the multiple sequence alignment and explain the analysis of concept of checking similarity along with tools.
Mapping between COs with PSOs	
Pre-requisite	Basic Science
Course Content	**UNIT-1: INTRODUCTION TO BIOINFORMATICS** 1.1 A word on Bioinformatics 1.1.1 Branches of Bioinformatics 1.1.2 Aims of Bioinformatics 1.1.3 Scope and Research area of Bioinformatics 1.2 Organization of Bioinformatics in India 1.2.1 BTIS 1.2.2 Bioinformatics Server in India 1.2.2.1 Protein structure prediction server 1.2.2.2 Genomics and Proteomics server 1.2.2.3 Conformational epitope prediction server 1.3 Indian IT Companies involved in Bioinformatics Initiatives **UNIT-2: BIOLOGICAL DATABASE** 2.1 Primary Database- Nucleotide sequence databases (EMBL, DDBJ, GenBank), Protein sequence databases (Swiss Prot, TrEMBL) 2.2 Secondary Database- Nucleotide sequence-TIGR, Protein sequence-PROSITE. 2.3 Structure Database- PDB, SCOPE, CATH 19 2.4 Metabolic Pathway Database- KEGG 2.5 Database retrieval tool- SRS, Entrez 2.6 Literature Database- PubMed

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

	UNIT-3: PAIRWISE SEQUENCE ALIGNMENT 3.1 Concept of Alignment - Global alignment, Local Alignment, Gap Penalty 3.2 Methods for sequence alignment: Dot matrix method, Dynamic Programming algorithm (Smith waterman & Needlemen Wunch algorithm). 3.3 Basic Local Alignment Search Tool 3.4 FASTA **UNIT-4: MULTIPLE SEQUENCE ALIGNMENT** 4.1 Introduction to Multiple sequence alignment. 4.2 Methods of Multiple sequence alignment (Sum of Pairs, Progressive, Iterative), 4.3 Application of Multiple sequence alignment. 4.4 Tools for Multiple sequence alignment: Clustal Omega.
Reference Books	1. Ghosh Z, Mallick B. Bioinformatics: Principles and Applications. Oxford University Press; 2008. 2. Attwood TK, Parry-Smith DJ. Introduction to bioinformatics. Essex, GB: Pearson Education; 1999. 3. Bosu O, Thukral SK. Bioinformatics: Experiments, Tools, Databases, and Algorithms. Oxford University Press, Inc.; 2007 Sep 6. 4. Murthy CSV. Bioinformatics. Himalaya Publishing House; 2016. 5. Rastogi SC, Rastogi P, Mendiratta N. Bioinformatics Methods And Applications: Genomics Proteomics And Drug Discovery 3Rd Ed. PHI Learning Pvt. Ltd.; 2008.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

BT 19 Microbiology Biotechnology

Course Code	**BT 19**
Course Title	**Microbiology Biotechnology**
Credit	2
Teaching per Week	2
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2020 – 2021
Purpose of Course	The purpose of the course is intended to provide the student with a working knowledge of the Microorganisms and their role in biotechnological process such as Fermentation. The course involved discussion from designing of fermenter to strain improvement for fermentation industries..
Course Objective	1. To understand the commercial applications of microorganisms. 2. To learn concept of isolating enzyme and antibiotic producing microorganisms. 3. Acquire the ability and knowledge to isolate and screen the commercially important bacteria from different sources. 4. Understand how microbes are useful to human beings and how their

<table>
<tr><td></td><td>products are commercialized.
5. The designing of fermenter and role of each component will be explored.</td></tr>
<tr><td>Course Outcomes</td><td>CO1: This unit explain students about basics of fermentation technology.
CO2: Through this unit students will get knowledge on microbial culture preservation and screening.
CO3: Students will come across understanding how to improve microbial strain for the better production of product.
CO4: By studying this unit students are able to understand design of fermenter for microbial biotechnology perspective.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><th></th><th>PSO1</th><th>PSO2</th><th>PSO3</th><th>PSO4</th><th>PSO5</th><th>PSO6</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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</td></tr>
<tr><td>Pre-requisite</td><td>Basic Science</td></tr>
<tr><td>Course Content</td><td>UNIT-1: INTRODUCTION TO MICROBIAL FERMENTATION
1.1 Concept of fermentation technology
1.2 Chronological development of industrial fermentation technology
1.3 Range of fermentation processes and products
1.4 Fermentation process outline
1.5 Fermentative production of Citric acid, Ethanol and Penicillin (Outline)

UNIT-2: MICROBIAL SCREENING AND PRESERVATION
2.1 Concept of microbial screening
2.2 Primary and Secondary screening
2.3 Isolation of industrially important microorganisms:
2.3.1 Methods utilizing selection of desired characteristics
2.3.2 Methods not utilizing selection of desired characteristics
2.4 Future potential and needs of microbial screening
2.5 Maintenance and Preservation of Microbial cultures 21

UNIT-3: IMPROVEMENT OF MICROORGANISMS
3.1 Types of Microbial mutants and their practical implications
3.2 Isolation of microbial mutants (Outline).
3.3 Selection of mutants producing high yield of primary & secondary metabolites
3.4 Parasexual cycle
3.5 Protoplast fusion

UNIT-4: FERMENTOR DESIGN
4.1 Basic functions of fermentor
4.2 Aseptic operation and Containment
4.3 Factors involved in fermentor design
4.4 Typical batch fermentor
4.5 Air-lift bioreactor and CSTF</td></tr>
<tr><td>Reference Books</td><td>1. Stanbury PF, Whitaker A, Hall SJ. Principles of fermentation technology. Elsevier; 2013 Oct 22.
2. Crueger W, Crueger A. Biotechnology: A Textbook of Industrial Microbiology. Madison: Sinauer Tech.; 1989.
3. Patel AH. Industrial microbiology. Macmillan India; 1984.</td></tr>
<tr><td>Teaching Methodology</td><td>Classwork, Discussion, Self-Study, Seminars and/or Assignment</td></tr>
</table>

Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

BT 20 Environmental Biotechonology

Course Code	BT 20
Course Title	Environmental Biotechonology
Credit	2
Teaching per Week	2
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2020 – 2021
Purpose of Course	The purpose of the course is Environmental Biotechnology combining biology with professional engineering wherein students are made aware of protecting and save environment; with use of bioremediation techniques using microbes, waste disposal into the environment and energy production using microorganisms.
Course Objective	1. To provide basic knowledge related to energy production using varieties of microorganisms. 2. To understand the concept of environmental bioremediation techniques and different microbes and plants that can be used for the same purpose. 3. To understand the role of microorganisms in waste treatment, characterize waste according to its hazardous nature and accordingly manage and dispose it. 4. To learn about bioleaching, metal precipitation and biopolymers and their uses. 5. Syllabus will help the students for making their career in the field of Environmental biotechnology, help in the research for using varieties of different organisms for bioremediation and waste treatment technologies.
Course Outcomes	CO1 :Students will learn about the organism's metabolic processes and their byproducts which can be used as energy sources. CO2 : Students will develop an understanding related to bioremediation, how it is helpful in treating environmental pollution problems and various bioremediation techniques. CO3 : Students will learn about the waste characterization based on their nature, use of aerobic and anaerobic techniques for waste treatment, and use of earthworms in increasing soil fertility by complete degradation of waste CO4 : This unit covers the processes such as Bioleaching, metal precipitation and biopolymers where students will learn about various microbes which can be used for bioleaching, metal precipitation and their removal from effluents and thereby from leaking into the environment and production of biopolymers and their uses.
Mapping between COs with PSOs	
Pre-requisite	Basic Science

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■					
CO2	■		■			
CO3	■	■	■		■	
CO4		■	■	■		■

Course Content	**UNIT-1: BIOENERGY** 1.1 Energy resources 1.2 Biogas technology 1.3 Bioethanol production from cellulosic waste 1.4 Microbial Hydrogen production 1.5 Biodiesel from Jatropha **UNIT-2: BIOREMEDIATION** 2.1 Principles of bioremediation 2.2 Factors responsible for bioremediation 2.3 Bioremediation strategies: *In situ* & *Ex situ* 2.5 Metal & Organic Phytoremediation 23 **UNIT-3: WASTE MANAGEMENT** 3.1 Characteristics of waste water 3.2 Aerobic biological waste water treatment: Activated sludge and Oxidation ponds 3.3 Anaerobic biological waste water treatment: UASB and Anaerobic baffled reactor 3.4 Conventional solid waste treatment technologies 3.5 Municipal waste management rules 3.6 Composting: Design aspects and process 3.7 Vermicomposting **UNIT-4: SOME SPECIAL PROCESSES** 4.1 Abatement of Air pollution 4.2 Bioleaching: Types and Methods 4.3 Metal Precipitation 4.4 Biopolymers: Types and Preparation 4.5 Properties and Practical applications of PHA
Reference Books	1. Fulekar MH. Environmental biotechnology. CRC Press; 2010 Jul 19. 2. Thakur IS. Environmental Biotechnology. IK International, New Delhi. 2006. 3. Pepper IL, Gerba CP, Gentry TJ, Maier RM, editors. Environmental microbiology. Academic press; 2011 Oct 13.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

BT 21 Plant Biotechnology

Course Code	**BT 21**
Course Title	**Plant Biotechnology**
Credit	2
Teaching per Week	2
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2020 – 2021
Purpose of Course	The purpose of the course is to understand the core concepts and fundamentals of plant biotechnology specifically plant tissue culture in order to promote in-vitro cultivation of different plant parts. This course will further augment student

<table>
<tr><td></td><td>knowledge about different techniques utilized for conservation and mass propagation of rare and endangered plant species and medicinal plants.</td></tr>
<tr><td>Course Objective</td><td>1. Key concept and understanding of media and nutrients, plant growth regulators needed to propagate tissue culture derived plants.
2. Thorough knowledge to grow, maintain and manipulate plant material in a laboratory setting for research and breeding purposes
3. To understand possible applications and limitations of different techniques utilized in plant tissue culture.</td></tr>
<tr><td>Course Outcomes</td><td>CO1 : Students will learn about historical perspective of plant tissue culture, plant tissue culture laboratory requirements and basic plant tissue culture media preparation and its significance.
CO2 : Whole unit focuses on one of the most important method of plant tissue culture i.e. Micropropagation, its types, advantages and limitations.
CO3 : Students will learn about types of in vitro embryogenesis, its culture conditions and its practical applications. They also learn about new other means of plant tissue culture i.e. synthetic seed technology and few preservation techniques.
CO4 :The unit focuses on different tissue culture techniques for haploid plant production in detail.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td><table>
<tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td><td>PSO6</td></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table></td></tr>
<tr><td>Pre-requisite</td><td>Basic Science</td></tr>
<tr><td>Course Content</td><td>UNIT-1:
1.1 Introduction and History of Plant tissue culture.
1.2 Laboratory Requirement and General Techniques.
1.3 Tissue culture Media (Murashiage and Skoog, Gamborg, Rosinni) Preparation, role of different media constituents and natural extracts.
1.4 Cellular Differentiation and Totipotency.

UNIT-2:
2.1 Micropropagation- Introduction, advantages and limitations.
2.2 Micropropagation (Direct organogenesis).
2.3 Micropropagation (Indirect organogenesis).

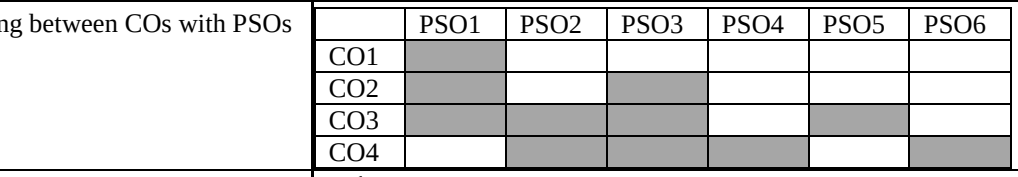
UNIT-3:
3.1 In vitro Embryogenesis: Somatic and Zygotic embryo culture conditions and practical applications.
3.2 Synthetic seeds – Classification, Encapsulation, Advantages limitations and Applications.
3.3 Cryopreservation and Germplasm conservation. 25

UNIT-4:
4.1 Haploid Production- Anther, Pollen, Ovary and Ovule Culture.
4.2 Factors affecting androgenesis and gynogenesis, Applications and Limitations.
4.3 Protoplast isolation and Culture-Methods of Isolation, Factors affecting Isolation, Purification and steps involved in culture.
4.4 Single cell culture.</td></tr>
</table>

Reference Books	1. Chawla H. Introduction to plant biotechnology (3/e). CRC Press; 2011 May 24. 2. Bhojwani SS, Razdan MK. Plant tissue culture: theory and practice. Elsevier; 1986 Jul 1. 3. Jha TB. Plant tissue culture: basic and applied. Universities Press; 2005. 4. Veeresham C, Kokate CK. Medicinal plant biotechnology. CBS Publishers and Distributers; 2006. 5. Razdan MK. Introduction To Plant Tissue Culture, 2/E. Oxford and IBH publishing; 2002.
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

BT 22 Animal Biotechnology

Course Code	**BT 22**
Course Title	**Animal Biotechnology**
Credit	2
Teaching per Week	2
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	The purpose of the course is
Course Objective	1. This course includes knowledge about techniques used in culturing of Animal cells in *in vitro* environment. 2. It is designed to give basic information about Animal Biotechnology subject, use of animal cell culture methods, various laboratory Equipments and procedures. 3. It gives the basic understanding of the way cell performs in the cultural environment and applications of cultured cells. 4. The syllabus also focuses on different tools and techniques applied in the field of assisted reproduction and in vitro fertilization.
Course Outcomes	CO1: This covers an introductory part of Animal Biotechnology where students get familiar with the basics of animal cell and tissue culture also the equipments used while culturing animal cells. The unit focuses on various advantages of studying Animal Biotechnology like – way to control the culture environment, characterization and homogenization of cultured cells etc. One can also learn different types of Animal cell culture techniques used in laboratory like – Adherent culture, Suspension culture and many more. CO2: Students will learn the general biological features of cells inside culture environment, their behaviour, metabolism and proliferation in *in vitro* conditions. Students gets familiar with cell – cell adhesion properties, how cells will proliferate under *in vivo* and *in vitro* conditions, how cell differentiates in variety of other forms.

	CO3: This unit gives training to setup an animal biotechnology laboratory. An overview is explained here for the techniques to carry out primary and secondary cell lines. It also covers the various types of culture media used in culturing of animal cells in *in vitro* environment like – Defined media, Complete medium, Serum free medium etc. as well as techniques used in sterilization of media – autoclaving and filter sterilization. CO4: This unit is an introductory part of Artificial Insemination and *in vitro* fertilization (IVF) technology. Students will learn about methods used for assisted reproduction like – intra uterine sperm transfer for Artificial insemination. The unit also covers the methods used in production of multiple egg cells used in artificial insemination technologies like IVF. Also students can learn the techniques used for intra uterine embryo transfer as a part of assisted reproductive biology.
Mapping between COs with PSOs	
Pre-requisite	12th Science with Biology Subject
Course Content	**UNIT-1: Introduction to Animal Biotechnology:** 1.1 Application of animal biotechnology 1.2 Advantages and limitations of animal tissue culture 1.3 Types of tissue culture 1.4 Equipments for cell culture **UNIT-2: Biology of Cultured Cells:** 2.1 Cell adhesion 2.2 Cell proliferation 2.3 Cell differentiation **UNIT-3: Aseptic Techniques and Animal Cell Culture Media:** 3.1 Aseptic environment and sterile handling 3.2 Defined media – Physical properties of media, complete media and serum free media 3.3 Sterilization of media **UNIT-4: Animal Reproductive Biology:** 4.1 Artificial insemination 4.2 Super ovulation 4.3 *In vitro* fertilization 4.4 Embryo transfer technology
Reference Books	1. Freshney RI. Culture of animal cells: a manual of basic technique and specialized applications. John Wiley & Sons; 2015 Dec 23. 2. Gordon I, editor. Reproductive technologies in farm animals. CABi; 2017 Jun 23.

Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

BTP 06: Biotechnology Practical

Course Code	**BTP 06**
Course Title	Biotechnology Practical
Credit	6
Teaching per Week	12
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2020- 2021
Purpose of Course	The purpose of the course is the practical aspects of major fields like bioinformatics, plant biotechnology, animal biotechnology and microbiology. The students will become familiar with the use of a wide variety of internet applications, biological database, online tools for in silico analysis and will be able to apply these methods to basic research problems. Emphasis will be given to the application of bioinformatics and biological databases to problem solving in real research problems. Students can learn various bioinformatics tools for sequence retrieval or to study protein structure. They also learn the tissue culture techniques and basic microbiological techniques which may be associated with production of antibiotics and organic acids or determination of water contamination.
Course Objective	1. To provide basic knowledge of bioinformatics tools for sequence retrieval both for nucleotides and proteins followed by the alignment and sequence prediction respectively. 2. To teach the concept of primary and secondary screening of microorganisms for the production of primary and secondary metabolites. 3. To teach basic tissue culture techniques like different media preparation for in vitro establishment of various plant parts. 4. To provide basic knowledge of buffers and media and to explain its importance in culture.
Course Outcomes	CO1: The major aim is to provide them basic level training in bioinformatics methods including accessing the major public sequence databases, use of the different computational tools to find sequences, perform text and sequence based searches analysis of protein and nucleic acid sequences using various software packages. Students will learn major tools of bioinformatics which may allow them to determine the degree of homology between sequences and prove helpful in predicting putative structure of proteins. CO2: Students will develop understanding related to the industrial screening and fermentation process. They will also learn the basic techniques for detection of coliforms which are associated with water contamination. CO3: Students will get the idea related to specific media and growth condition for the development of callus from explants. CO4: Practical skills of students will be enhanced as they learn the preparation of media for culturing animal cells, sterilization techniques and isolation of specific cells.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6

	CO1 ■ ■ ■ ■ ■ ■ CO2 ■ ■ ■ ■ ■ ■ CO3 ■ ■ ■ ■ ■ ■ CO4 ■ ■ ■ ■ ■ ■
Pre-requisite	Basic Science
Course Content	1. Nucleotide and protein Sequence retrieval from NCBI/EMBL 2. Protein Structure retrieval from Protein Data Bank (PDB) 3. Exploring information from metabolic pathway database 4. Protein structure visualization by RasMol 5. Pairwise sequence alignment using BLAST/FASTA 6. Multiple sequence alignment using Clustal Omega/Clustal X 7. Sterility testing of pharmaceutical products 8. Determine MIC of commercially available antibiotics 9. Isolation and screening of antibiotic producing microorganisms: (a) Crowded Plate Technique (b) Wilkin's Technique 10. Isolation and screening of Extracellular enzyme producing microorganisms: (a) Amylase producer (b) Protease producer (c) Cellulase producer (d) Lipase producer 11. Fermentation by eukaryotic microorganisms: (a) Aerobic- Citric acid (b) Anaerobic- Ethanol 29 12. Isolation of antibiotic resistant mutants by GPT and RPT 13. Determination of COD and BOD of given waste water 14. Detection of faecal coliforms in drinking water by defined substrate test 15. Isolation of mesophyll cell by different methods. 16. Media preparation (Murashiage and Skoog, Gamborg B5) and explants inoculation. 17. Callus culture from different explants (node, internode and leaf). 18. Preparation of buffers and media for animal cell culture: (a) PBS & HBSS (b) RPMI-1640/DMEM 19. Sterilization of buffers and animal cell culture media by autoclave and filtration techniques 20. Isolation of cells from Spleen / Liver / Chick fibroblast
Reference Books	1. Bhojwani SS, Razdan MK. Plant tissue culture: theory and practice. Elsevier; 1986 Jul 1. 2. Razdan MK. Introduction To Plant Tissue Culture, 2/E. Oxford and IBH publishing; 2002. 3. Patel RJ, Patel KR. Experimental microbiology Part II. Aditya Publication, Ahmedabad. 2016.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on

	semester end University examination

M. Sc. Biotechnology

Name of Program	**M. Sc. Integrated Biotechnology**
Abbreviation	**BT**
Duration	**2 Years**
Eligibility Criteria	**B. Sc. Biotechnology/Microbiology/Biochemistry**
Objective of Program	To convey scientific and technological knowledge and information with modern age orientation. To help young learners and realize that science and technology, both hand in hand can enrich and develop a personality, thus promising a life of success and achievement.
Program Outcome	• **PO 1: Think Critically:** Get ability to apply the process of science by formulating hypotheses and design experiments based on the scientific method. • **PO 2: Problem analysis:** Analyse and interpret results generated through studies in Master of Science, taxonomical treatments, field studies, excursion tours and laboratory techniques used in the subject. Identify credible scientific sources to interpret and evaluate the evidences. • **PO 3: Reasoning ability:** Use quantitative reasoning by using mathematical calculations and graphing skills to solve problems in the field of science. • **PO 4: Team work:** Students would perform functions that demand higher competence in national/international organizations with sporty spirits and helping each other. • **PO 5: Communication Skill:** Effective Communication and collaborate with other disciplines by effectively communicating the fundamental concepts of Biological Science in written and oral format. • **PO 6: Ethical awareness:** Understand the relationship between science and society by recognizing and discussing logical, scientific and ethical issues in Biological science subject. • **PO 7: Environment and Sustainability:** Understand the issues of environmental contexts and sustainable development with respect location and biological annotation genes of different species. to assessment, conservation and utilization of floral diversity • **PO 8: Digitally literate:** Capable of using computers for Bioinformatics and computation and appropriate software for analysis of genomics and proteomics data, and employing modern bioinformatics search tools to locate, retrieve, and evaluate • **PO 9: Self-directed and Life-long Learning:** Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes • **PO 10: Global thinking:** Knowledgeable disciple students with good values, ethics, and kind heart will help in nation building globally.
Program Specific Outcomes	Students will be able to appear and qualify for competitive exams like NET, GSET, and GATE. They will be skilled enough to join anyresearch institute, Biopharma industry or even start ventures of their own. PSO1: Postgraduate students will be able to demonstrate and apply the principles of bioprocess engineering in the design, analysis, optimization and simulation of

<table>
<tr><td></td><td>bioprocess operations.

PSO2: Students will be able to gain fundamental knowledge in animal and plant biotechnology and their applications.

PSO3: Students will be able to (a) To elaborate concepts of biochemistry with easy to run experiments; (b) To familiarize with basic laboratory instruments and understand the principle of measurements using those instruments with experiments in biochemistry.

PSO4: Students will be able to understand various facets of molecular procedures and basics of genomics, proteomics and metabolomics that could be employed in early diagnosis and prognosis of human diseases.

PSO5: Students will be able to gain hands on experience in gene cloning, protein expression and purification.

PSO6: This experience would enable them to begin a career in industry that engages in genetic engineering as well as in research laboratories conducting fundamental research.</td></tr>
<tr><td>Mapping between POs and PSOs</td><td>
<table>
<tr><th></th><th>PSO1</th><th>PSO2</th><th>PSO3</th><th>PSO4</th><th>PSO5</th><th>PSO6</th></tr>
<tr><td>PO1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>PO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>Medium of Instruction</td><td>English</td></tr>
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M.Sc. 7th Semester

Course: BT-1001: Bioprocess Technology-I

Course Code	**1001**
Course Title	**Bioprocess Technology-I**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2018-2019
Purpose of Course	The purpose of the course is to provide insights about basics of fermentation technology including concepts, methods and applications.
Course Objective	To acquaint students with the concepts of bioprocess technology.
Course Outcomes	CO1: To acquaint students with basics of sterilisation in fermentation technology. Inculcate the fundamentals of process monitoring, validation and sterility audit. Conceptualise the inoculum development and nutritional requirement at industrial scale fermentation process and provides insights about RSM technology.
	CO2: To elaborate on gas mass transfer and heat mass transfer concepts to the students. Students will gain insights on fundamentals of process control including control loops and measured elements. CO3: Students will acquire concepts of cell separation techniques. Inculcate the concepts of sample pretreatment, CGMP and regulatory considerations in bioprocess technology. Provide insights of cross-flow filtration, cell disruption techniques and centrifugation. CO4: Students will gain fundamentals of product recovery/downstream processing at the industrial scale fermentation. Students will acquire knowledge pertaining to product isolation, precipitation, chromatography, membrane separations, and electrophoresis. Also, provide illustration of product recovery trains of polysaccharides, proteins and glycolic acid at industrial scale.
Mapping between COs with PSOs	
Pre-requisite	Basics of Biology, Biotechnology, Biochemistry, Microbiology

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■		■	■	■	■
CO2	■		■	■	■	■
CO3	■	■	■		■	
CO4		■	■	■		■

Course Content	**UNIT-1: Unit Operations in Bioprocess Technology:** 1.1 Introduction to sterilization in bioprocess industry 1.2 Equipment sterilization 1.3 Monitoring &Validation of sterilization 1.4 Sterility audit and automation 1.5 Introduction to the development of inoculums for industrial process 1.6 Nutritional requirements in fermentation processes 1.7 Introduction to Response Surface Methodology (RSM) **UNIT-2: Mass Transfer and Instrument Control:** 2.1 Gas-liquid mass transfer in cellular systems 2.2 Determination of Oxygen Transfer Rates (OTR) 2.3 Introduction to Heat Transfer 2.4 Fundamentals of Process Control 2.5 Control loops 2.6 Additional forms of Control 2.7 Measurement Elements **UNIT-3: Cell Separation Systems:** 3.1 Introduction to Cell Separation Systems. 3.2 Criteria for Decision. 3.3 Pre-treatment's. 3.4 CGMP and Regulatory Considerations. 3.5 Conventional Filtration & Cross flow Microfiltration. 3.7 Centrifugation. 3.7 Cell Disruption: Physical and Chemical Methods. **UNIT-4: Product Recovery:** 4.1 Product Isolation: Extraction and Sorption 4.2 Precipitation 4.3 Chromatography and fixed bed adsorption 4.4 Membrane Separation: RO and UF 4.5 Electrophoresis 4.6 Product Recovery Trains (General Concepts) 4.7 Recovery of: Polysaccharides, Proteins & Gluconic Acid

Reference Books	1. James, B. & Ollis David, F. (2010). Biochemical EngineeringFundamentals. Tata McGraw-Hill. 2. Lydersen, B. K., D'Elia, N. A. & Nelson, K. L. (2010). Bioprocess Engineering: Systems, Equipment and Facilities. Wiley India Pvt. Ltd. 3. Stanbury, P. F. & Whitaker, A. (1984). Principles of Fermentation Technology. Pergamon Press. 4. Vogel, H. C. & Todaro, C. M. (1996). Fermentation and biochemical engineering handbook: principles, process design and equipment. William Andrew.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment

Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based onsemester end University examination

Course: BT-1002: Enzyme Technology

Course Code	**1002**
Course Title	**Enzyme Technology**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2018-2019
Purpose of Course	The purpose of the course is to provide the theory and knowledge relevant to the enzymology principles including fundamental properties of enzymes, enzyme catalytic mechanisms and enzyme kinetics.
Course Objective	Students will be introduced to the theory as well as applications of enzyme technology in food, medical, and household industries. Finally, this course serves to provide an awareness of the current and possible future applications of enzyme technologies.
Course Outcomes	CO1: To acquaint students with the fundamentals of enzyme properties, nomenclatures, characteristics and mechanisms and apply biochemical calculation for enzyme kinetics. CO2: Students will compare methods for production, purification, characterization and immobilization of enzymes that can benefit human life and plot graphs based on kinetics data. CO3: To discuss various application of enzymes that can benefit human life. CO4: Discover the current and future trends of applying enzyme technology for the commercialization purpose of biotechnological products.
Mapping between COs with PSOs	
Pre-requisite	Basic of Biology, Biotechnology, Biochemistry, Microbiology

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

Course Content	**UNIT – 1: Enzyme Preparation:** 1.1 Potential Sources of Enzymes 1.2 Screening for novel Enzymes 1.3 Media for enzyme production 1.4 Extraction and large scale purification of Enzymes 1.4.1 Extraction of soluble and membrane-bound enzymes, Nature of the extraction medium 1.4.2 Preliminary and Advanced purification procedures, Criteria of purity 1.4.3 Determination of molecular weights of enzymes **UNIT – 2: Immobilized Enzymes and Biosensors:** 2.1 Preparation and properties of immobilized enzymes 2.2 Application of Immobilized enzymes: General principles 2.3 Genetic immobilization of enzymes on yeast cell surface 2.4 Biosensors: Calorimetric, Potentiometric and Optical **UNIT – 3: Large Scale/ Industrial Uses of Enzymes:** 3.1 Use of enzymes in detergents 3.2 Enzymes in the fruit juices, wine, brewing and distillation industries 3.3 Use of proteases in the leather and wool industry 3.4 Applications of glucose oxidase and catalase in the food industry 3.5 Use of enzymes in cellulose and starch hydrolysis 3.6 Use of lactases in the dairy industry 3.7 Medical applications of enzymes **UNIT – 4: Recent advances and future prospects in Enzyme Technology:** 4.1 Enzymes and recombinant DNA technology. 4.2 Synthesis of artificial enzymes- Enzyme engineering. 4.3 Use of 'unnatural' substrates. 4.4 Coenzyme-regenerating systems. 4.5 Enzymes and Bioinformatics.

Reference Books	1. Enzymes: Biochemistry, Biotechnology and Clinical Chemistry Trevor Palmer, Horwood Publishing Chichester, England. 2. Enzymes and Immobilized Cells in Biotechnology. Allen I. Laskin, The Benjamin/Cummings Publishing Company, INC., California. 3. Fermentation Microbiology and Biotechnology. Mansi El-Mansi & Charlie Bryce, Taylor & Francis Ltd, London. 4. Industrial Biotechnology. S. N. Jogdand, Himalaya Publishing House, Mumbai. 5. Fundamentals of Enzymology: Nicholes C. Price and Lewis Stevens, Oxford Univ. Press.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: BT-1003: Advances in Instrumentation and Techniques

Course Code	**1003**
Course Title	**Advances in Instrumentation and Techniques**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2018-2019
Purpose of Course	To impart the knowledge of advance instrument and techniques so students can utilize it in their research or dissertation work.
Course Objective	It makes student able to understand the advance instrument and their application in their future research or dissertation.
Course Outcomes	CO1: Students learn about various types of advanced spectroscopy. CO2: Students learn about various electrophoretic techniques to be used in their molecular Biology research/dissertation. CO3: Students learn about various chromatographic techniques to be used in Biotechnology research/dissertation. CO4: Student also learn about sample preparation operation and application of various instruments and techniques.
Mapping between COs with PSOs	
Pre-requisite	Basics of Biology, Biotechnology, Biochemistry, Microbiology

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■	■	■	■	■	■
CO2	■	■	■	■	■	■
CO3	■	■	■		■	
CO4		■	■	■		■

Course Content	**UNIT – 1: Advances in Spectroscopy:** 1.1 Principle, Instrumentation, Interpretation of results in IR spectroscopy 1.2 FT-IR: Principle and application 1.3 Working principle of NMR 1.4 Mass spectrometry and their applications 1.5 Atomic spectroscopy 1.5.1 Atomic absorption spectroscopy: Principle, atomizers, sources and applications 1.5.2 X-ray diffraction/crystallography: Principle and application **UNIT – 2: Electrophoretic Techniques:** 2.1 Electrophoresis of proteins 2.1.1 SDS-PAGE 2.1.2 Native gels and Gradient gels 2.1.3 Isoelectric focusing 2.1.4 Two dimensional electrophoresis 2.1.5 Western blotting 2.2 Electrophoresis of nucleic acids 2.2.1 Agarose gel of DNA and RNA 2.2.2 DNA sequencing gels 2.2.3 Southern Blotting 2.2.4 PFGE, DGGE and TGGE **UNIT – 3: GC and HPTLC:** 3.1 HPTLC: Methods of development and spot detection 3.2 GC: Principle, stationary and mobile phases 3.2.1 Detectors: FID, TCD, ECD 3.2.2 Quantitative analysis and qualitative analysis 3.2.3 GC-MS combinations 3.2.4 Limitations of GC **UNIT – 4: Advances in Liquid Chromatography:** 4.1 HPLC 4.1.1 Components of Instrumentation 4.1.2 Isocratic, binary and quaternary system 4.1.3 Types of columns 4.1.4 Stationary and mobile phases 4.1.5 Detectors: UV absorption, PDA, RI and fluorescence 4.2 Ion exchange chromatography: Types of resins, principles of separation, detection and applications 4.3 Gel filtration chromatography: Principles and applications

Reference Books	1. Skoog D. Skoog and West's Fundamentals of Analytical Chemistry. Andover: Cengage Learning EMEA; 2014.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: BT-1004: Cell and Tissue Culture Technology-I

Course Code	**1004**
Course Title	**BT-1004: Cell and Tissue Culture Technology-I**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2018-2019
Purpose of Course	The purpose of this course is to learn the details of Cell culture Technology.
Course Objective	The objective of this course is to acquaint students with Tissue culture technology utilized for plant and animal cell.
Course Outcomes	CO1: First unit deals with Plant Genomes and Plant Tissue culture where the details of eukaryotic gene systems along with the plant tissue culture techniques to be dealt. CO2: Second unit is Secondary metabolites isolation and identification. Here students would learn about the different aspects related to secondary metabolites from plants. CO3: Third unit is about Immortalization and Cell Separation Techniques. The outcome would be the knowledge of Immortalization with viral genes Telomerase-Induced immortalization, tumorigenicity and various techniques used in animal cell culture. CO4: Fourth unit is Cell culture, cryopreservation and Cell viability. Expected outcome of the unit would be the knowledge about importance of different important parameters in Cell culture technique.
Mapping between COs with PSOs	
Pre-requisite	Basics of Biology, Biotechnology, Biochemistry, Microbiology

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

Course Content	**UNIT-1: Plant Genomes and Plant Tissue Culture:** 1.1 Eukaryotic Gene structure and gene expression-regulation, Protein targeting 1.2 Types of plant promoters, enhancer and reporter system 1.3 Plant tissue culture: Culture environment and growth regulators 1.4 Types of culture **UNIT-2: Secondary Metabolites Isolation and Identification:** 2.1 Classification, Biosynthetic pathway of secondary metabolites production, factorsaffecting production of secondary metabolites in plant tissue culture 2.2 Methods of extraction and isolation 2.3 Methods of separation 2.4 Methods of identification 2.5 Applications **UNIT-3: Immortalization and Cell Separation Techniques:** 3.1 Control of senescence 3.2 Immortalization with viral genes 3.3 Telomerase-Induced immortalization 3.4 Tumorigenicity 3.5 Cell density and isopycnic sedimentation 3.6 Antibody based cell separation techniques 3.7 Fluorescence-Activated Cell Sorting (FACS) **UNIT-4: Cell culture, Cryopreservation and Cell Viability:** 4.1 Primary culture 4.2 Criteria for subculture, subculture of cells growing in suspension and in monolayer 4.3 Cryopreservation, principles of cryopreservation 4.4 Cell viability

Reference Books	1. Plant Biotechnology: An Introduction to Genetic Engineering by Adrian Slater, Nigel W. Scott, Mark R. Fowler. Oxford University Press, 2008. 2. Phytochemical Methods A Guide to Modern Techniques of Plant Analysis by JB Harborne. Springer, 1998. 3. Introduction to Plant Biotechnology. 2nd edition. By H. S. Chawla. Oxford & IBH publishing Co. Pvt. Ltd. New Delhi. 4. Plant Tissue culture: Theory and Practice, a revised Edition, S. S. Bhojwani and M.K. Razdan, Elsevier. 5. Ian R. Freshney, Culture of animal cells: a manual of basic technique and specialized applications, 6th Ed., Willey Blackwell pub.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination.

Course: BTP-1005: Enzyme and Bioprocess Technology

Course Code	**1005**
Course Title	**Enzyme and Bioprocess Technology**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2018-2019
Purpose of Course	The purpose of the course is to provide hands on training on the enzyme and bioprocess technology.
Course Objective	To acquaint students with the practicals related to bioprocess and enzyme technology
Course Outcomes	CO1: To perform time course/temperature optima of alkaline phosphatase. CO2: To determine double reciprocal curve and enzyme inhibition kinetics of alkaline phosphatase. CO3: To determine TDP/TDT of microorganism for design of a fermenter. CO4: to estimate OTR by sulphide oxidation method and to investigate the thermal stability of the HRP enzyme. CO5……CO10: To perform immobilisation of the whole cells by calcium alginate method to carry out fermentation for production and purification of amylase and to demonstrate basic fermenter process in a bioreactor.
Mapping between COs with PSOs	
Pre-requisite	Basics of Biology, Biotechnology, Biochemistry, Microbiology

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■		■	■	■	■
CO2	■		■	■	■	■
CO3	■	■	■		■	
CO4		■	■	■		■
CO5						■
CO6	■	■	■	■	■	■
CO7	■	■	■	■	■	■
CO8	■	■	■	■	■	■
CO9	■	■	■	■	■	■
CO10	■	■	■	■	■	■

Course Content	1. To study time, course of the reaction catalyzed by alkaline phosphatase. 2. To determine temperature optima for alkaline phosphatase. 3. To investigate the thermal stabilityof horseradish peroxidase. 4. Preparation of double reciprocal curve. 5. Study of enzyme inhibition kinetics. 6. Estimation of oxygen transfer rate (OTR) by sulphite oxidation method. 7. Immobilization of whole cells (Yeast/Bacteria) by calcium alginate method. 8. Production, estimation and purification of amylase/lipase/protease. 9. Determination of thermal death point (TDP) and thermal death time (TDT) ofmicroorganism for design of a sterilizer. 10. Demonstration of fermentation process in a bioreactor.

Reference Books	1. Pricea, N and Newman, L. (2000) Demonstration of the principles of enzyme-catalysed reactions using alkaline phosphatase. Biochemistry and Molecular Biology Education. 28; 207-210. 2. McComb R.B., Bowers G.N., Posen S. (1979) Measurement of Alkaline Phosphatase Activity. In: Alkaline Phosphatase. Springer, Boston, MA. 3. Dean, R.L. (2002), Kinetic studies with alkaline phosphatase in the presence and absence of inhibitors and divalent cations. Biochem. Mol. Biol. Educ., 30: 401-407. 4. Copeland WH, Nealon DA, Rej R. Effects of temperature on measurement of alkaline phosphatase activity. Clin Chem. 1985 Feb;31(2):185-90. PMID: 3967347. 5. Experimental Microbiology by Rakesh Patel, Volume 1 and 2
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: BTP-1006: Cell Culture Technology-I

Course Code	**1006**
Course Title	**Cell Culture Technology-I**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2018-2019

<table>
<tr><td>Purpose of Course</td><td>To equip students with the practicals of Cell and tissue culture technology used in both plants and animal kingdom</td></tr>
<tr><td>Course Objective</td><td>To familiarize students on how to perform tissue culture of plants with different techniques as well as to learn the isolation of different cell types from animal system.</td></tr>
<tr><td>Course Outcomes</td><td>CO1, CO2, CO3, CO4 & CO5: This group of practical is related to Plant Tissue Culture. Outcome would be to learn how to perform tissue culture with various explants and also to isolate protoplast used in transformation studies.

CO6, CO7, CO8, CO9 & CO10: This set of experiment is related to Animal Cell Culture studies. Outcome of the practicals would be to know how to isolate Mononuclear cells from Blood, banding patterns, metaphase plate as well Cell culture maintenance.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
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<tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td><td>PSO6</td></tr>
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<tr><td>CO9</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO10</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>Pre-requisite</td><td>Basics of Biology, Biotechnology, Biochemistry, Microbiology</td></tr>
</table>

Course Content	1. Preparation of commonly used Plant Tissue culture media (MS and Gamborg's B5 media) forplantlet regeneration. 2. Anther culture. 3. Embryo culture. 4. Qualitative analysis of important phytochemicals. 5. Isolation of protoplast. 6. To perform suspension culture (PBLC) and prepare metaphase plate. 7. To perform GTG banding and learn Karyotyping of prepared metaphase plates. 8. Isolation of Peripheral Blood Mononuclear Cells (PBMC). 9. Assessment of cell viability by Trypan blue. 10. Cell Culture: Cell revival and Cell maintenance.

Reference Books	1. Pricea, N and Newman, L. (2000) Demonstration of the principles of enzyme-catalysed reactions using alkaline phosphatase. Biochemistry and Molecular Biology Education. 28; 207-210. 2. McComb R.B., Bowers G.N., Posen S. (1979) Measurement of Alkaline Phosphatase Activity. In: Alkaline Phosphatase. Springer, Boston, MA. 3. Dean, R.L. (2002), Kinetic studies with alkaline phosphatase in the presence and absence of inhibitors and divalent cations. Biochem. Mol. Biol. Educ., 30: 401-407. 4. Copeland WH, Nealon DA, Rej R. Effects of temperature on measurement of alkaline phosphatase activity. Clin Chem. 1985 Feb;31(2):185-90. PMID: 3967347. 5. Experimental Microbiology by Rakesh Patel, Volume 1 and 2
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: BT-2001: Bioprocess Technology-II

Course Code	**2001**
Course Title	**Bioprocess Technology-II**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2018-2019

<table>
<tr><td>Purpose of Course</td><td>The purpose of the course is to provide basics of fermentation of food/feed products and fine chemicals. To conceptualise industrial production in animal and plant cells and of process economics/validation</td></tr>
<tr><td>Course Objective</td><td>To acquaint students with fundamentals of large scale cultivation of microbial, animal and plant cells.</td></tr>
<tr><td>Course Outcomes</td><td>CO1: Provide in depth understanding about fermentation of various food/feed products like wine, beer, vinegar. To provide insights about single cell proteins and gluconic acid production at industrial scale.

CO2: Provide in depth understanding about fermentation of various fine chemicals like Penicillin, citric acid, ethanol, L-Lysine and Human Recombinant insulin.

CO3: Students will gain understanding related to large scale animal cell culture and bioreactor technology. Provide insights about stirred tank characteristics, support systems and downstream processing. Also, provides fundamentals of non-traditional cell culture approaches like spin filter bioreactor, ceramic matrix and fluidised bed reactor and regulatory affairs.
Students will gain basic concepts about biopharmaceutical validation including need and occurrence, structure, resources and validation of systems and processes.

CO4: Inculcate the basics of plant cell cultivation on the large scale including the type of reactor commonly employed, difficulties in downstream processing and control parameters.

Students shall gain the concepts of nine stages of process economics in general fermentation at industrial scale. Acquire the generalise concepts of economic related o fine chemicals and bulk oxygenates and SCP production. Also, provide information regarding bioproduct regulatory bodies like FDA, USDA, OSHA etc.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td><table>
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<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>Pre-requisite</td><td>Basics of Biology, Biotechnology, Biochemistry, Microbiology</td></tr>
</table>

Course Content	**UNIT-1: Fermentation of Food and Feed Products:** 1.1 Fermentation of Wine 1.2 Fermentation of Beer 1.3 Fermentation of Vinegar 1.4 Production Single Cell Proteins 1.5 Fermentation of Gluconic acid **UNIT-2: Fermentation of Fine Chemicals:** 2.1 Penicillin 2.2 Citric acid 2.3 Ethanol 2.4 L-lysine 2.5 Human Recombinant Insulin **UNIT-3: Industrial Production in Animal and Plant Cells:** 3.1 Introduction to Large Scale Animal Cell Culture 3.2 Animal Cells and Bioreactor Technology 3.3 Stirred Tank Characteristics 3.4 Support Systems 3.5 Downstream Processing 3.6 Non-traditional cell culture processes & Regulatory issues 3.7 Cell culture production runs (example) & Plant cell cultivation **UNIT-4: Bioprocess Industry-Economics and Validation:** 4.1 General Fermentation Process Economics 4.2 Economics of Fine Chemicals, Bulk Oxygenates and SCP Production 4.3 Bioproduct Regulation 4.4 Introduction to Biopharmaceutical Validation 4.5 Need for Validation and Occurrence of Validation 4.6 Validation Structure and Resources for Validation 4.7 Validation of Systems and Processes

Reference Books	1. Reed G. (2004). Prescott and Dunn's Industrial microbiology. CBS Publishers & Distributors 2. Peppler, H. J., & Perlman, D. (1979). Microbial technology. Vol. 1 and 2. Academic Press Inc. 3. Vogel, H. C., & Todaro, C. M. (1996). Fermentation and Biochemical Engineering Handbook: Principles, Process Design and Equipment. William Andrew. 4. James, B., &Ollis David, F. (2010). Biochemical engineering fundamentals. Tata McGraw-Hill. 5. Lydersen, B. K., D'Elia, N. A., & Nelson, K. L. (Eds.). (2010). Bioprocess engineering: systems, equipment and facilities. Wiley India Pvt. Ltd.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: BT-2002: Genomics and Proteomics

<table>
<tr><td>Course Code</td><td>2002</td></tr>
<tr><td>Course Title</td><td>Genomics and Proteomics</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per Week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>15 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective From</td><td>2018-2019</td></tr>
<tr><td>Purpose of Course</td><td>The purpose of the course is to make the student capable of implementing the knowledge related to Genes, proteins and their interdisciplinary with bioinformatics tools and to acquaint students with concepts of genomics and proteomics and its applications.</td></tr>
<tr><td>Course Objective</td><td>To make students acquainted with concepts of genomics and proteomics and its applications.</td></tr>
<tr><td>Course Outcomes</td><td>CO1: Explain students the basics of mapping using genetic and physical features of genes. To brief them about next generation sequencing tools and methods.

CO2: To help students gain knowledge regarding annotation of genes, to elaborate on comparative genomics so that they can make comparisons between genomes of microbes, organelles and eukaryotes and explore the study for the application.

CO3: To train students regarding different techniques used to study the basic structure of proteins, the techniques used for isolation of proteins and the platforms that are available for the identification of the proteins.

CO4: To acquaint students about purification of proteins and their interactions with other proteins. To explain them about various projects related to microbial and biochemical network.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><th></th><th>PSO1</th><th>PSO2</th><th>PSO3</th><th>PSO4</th><th>PSO5</th><th>PSO6</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Pre-requisite</td><td>Basics of Biology, Biotechnology, Biochemistry, Microbiology</td></tr>
</table>

Course Content	**UNIT-1: Methods of Studying Genomes:** 1.1 Genetic mapping: DNA Markers and Linkage mapping 1.2 Physical mapping: Restriction mapping, FISH, STS mapping 1.3 Chain termination sequencing: Traditional and Alternative methodology 1.4 NGS Techniques: Template preparation, Sequencing and Imaging, EmulsionPCR 1.5 NGS Platforms: Pyro-sequencing, SOLiD, Illumina, Ion Torrent, Helicose,PacBio, Nanopore 1.6 Assembly of a contiguous DNA sequence **UNIT-2: Annotation& Functional Genomics:** 2.1 Locating genes in sequence 2.2 Determining function of individual genes 2.3 Global gene expression profiling: Microbial genes and Human diseases *2.4* Annotation case study of *Sachharomyces cerevisiae* 2.5 Comparative genomics: Bacteria, Organelles and Eukaryotes **UNIT-3: Proteomics-I:** 3.1 2-D PAGE for proteome analysis 3.2 Detection of proteins in 2D gels 3.3 Mass Spectroscopy: Introduction, background and *de novo* sequencing usingMS data 3.4 Use of protein microarrays 3.5 Structural proteomics: X-ray crystallography and NMR 3.6 International structural proteomics initiatives **UNIT-4: Proteomics-II & International Collaborative Projects:** 4.1 Methods for studying protein interactions 4.2 Use of affinity purification 4.3 Bioinformatics support to study protein interaction 4.4 Metabolomics and global biochemical networks 4.5 Human Genome Project: Mapping phase, Sequencing phase and future 4.6 Other projects: ENCODE, HapMap, Human Microbiome Project

Reference Books	1. Brown T. Genomes 3. New York and London: Garland Science; 2007. 2. Primrose S, Twyman R. Principles of genome analysis and genomics. Malden, Mass.: Blackwell Pub.; 2003. 3. Pennington, S. and Dunn M. Proteomics from protein sequence to function. New Delhi: Viva Books Private Limited; 2002.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: BT-2003: Aquaculture Technology

Course Code	**2003**
Course Title	**Aquaculture Technology**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2018-2019
Purpose of Course	The Purpose of Course is to make Students aware regarding the various aspects of Aquaculture, its history, its scopes, different systems and its applications.
Course Objective	The Objective of this paper is to give information to students regarding – How to start an Aquaculture and its various requirements. The students study about different Aquaculture systems, how to start it and how to sustain it as a profitable income source.
Course Outcomes	CO1: Explains students about the history, scope and importance of Aquaculture. CO2: Students gets the information regarding general characteristics of fishes and its economic importance. CO3: Students gets knowledge about different types of Aquaculture systems, type of Hatcheries and its designs. CO4: Explains regarding the different types of feed and its formulations, used for Aquatic animals. The course also explains the new concept involved in Aquaculture like use of Probiotics and Prebiotics. Students gets information about Marine Toxins and Biofouling which helps in overall understanding of Aquaculture. Explains various diseases affecting the fishes, its symptoms and its Diagnostic methods. Knowledge regarding new diagnostic techniques like PCR, ELISA, etc., is also included.
Mapping between COs with PSOs	
Pre-requisite	Basics of Mathematics, Data Structures

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

Course Content	**UNIT-1: Introduction to Aquaculture:** 1.1. Definition, scope & significance of aquaculture 1.2. General characteristics and economic importance of fishes 1.3. Sustainable aquaculture 1.4. Fish culture process 1.5. Components, design & types of Hatcheries 1.6. Different Aquaculture Systems **UNIT-2: Aqua-Feed& Diseases:** 1.1. Importance and types of feeds 1.2. Feed formulations & feed developmental process 1.3. Prebiotics & Probiotics in Aqua-feed 1.4. Bacterial, Viral, Fungal diseases of fishes and their diagnosis 1.5. Fish spoilage & marine toxins 1.6. Bio-fouling **UNIT-3: Aquaculture Biotechnology:** 1.1. Transgenic fish production 1.2. Chromosomal manipulation – Triploidy, Polyploidy, Androgenesis & Gynogenesis 1.3. Applications of recombinant hormone & growth factors in aquaculture 1.4. Fish vaccines and its development 1.5. Cryopreservation **UNIT-4: Algal Biotechnology:** 1.1. Economic importance of seaweeds& algae 1.2. Seaweed & microalgae culture methods 1.3. Bioactive compounds from marine organisms 1.4. Molecular farming of microalgae 1.5. Enhancement of protein production by microalgae

Reference Books	1. General & Applied Ichthyology (Fish & Fisheries) by S. K. Gupta & P. C. Gupta, S. Chand Publication, New Delhi. 2. Aquaculture Technology & environment by Ujwala Jadhav, Prentice Hall of India Pvt. Ltd., New Delhi. 3. Biotechnology & Genetics in Fisheries & Aquaculture by Andy Beaumont, Pierre Boudry, Kathrin Hoare. 4. Aquaculture - Farming aquatic animals & plants – Edited by John S. Lucas, Paul C. Southgate, Blackwell publishing Company. 5. Fisheries & Aquaculture Biotechnology by Varun Mehta, Book International Pub. 6. A Textbook of Fish Biology & Fisheries by S. S. Khanna & H. R. Singh. 7. Fish Health & Diseases by B. R. Selvamani & R. K. Mahadevan, Campus books Int., New Delhi.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: BT-2004: Agriculture Biotechnology

Course Code	**2004**
Course Title	**Agriculture Biotechnology**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	The purpose of the course is to provide concepts of plant tissue culture technologies and stress resistance crops production., molecular breeding and molecular farming in plants.
Course Objective	To make students acquainted with basics concepts of transgenic plant technologies, molecular breeding and molecular farming.
Course Outcomes	CO1: Students will gain in depth understanding of role and molecular actions of plant growth regulators in tissue culture. Acquire fundamentals of direct transformation of protoplasts and indirect transformation using Agrobacterium based vectors. CO2: Students shall gain insights into physiological and molecular responses of plant to water, salinity and temperature stress. Also, provides concepts of stress signalling pathways in plants. Students will gain in depth understating of plant interaction with plant pathogens and molecular and biochemical basis of host plant resistance. CO3: Students will learn about various strategies to develop herbicide tolerant plants and basic methods to develop pest tolerant (BT toxin) plants. CO4: Students will acquire knowledge about various molecular markers technologies like RFLP, RAPD, AFLP, SSR, STS, SCAR, CAPS, SNP and ISSR. Also, students will learn about QTL linkage mapping and MAS. Students shall gain insights into the basic fundamentals of molecular farming and will sight some examples of production of bio products using plant as bioreactors. Students shall gain the concepts of edible vaccines and plantibodies. Also, elaborate on the oleosin system- Hirudin and insulin production.
Mapping between COs with PSOs	
Pre-requisite	Basics of Biology, Biotechnology, Biochemistry, Microbiology

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

Course Content	**UNIT-1: Tissue Culture & Transgenic Technologies:** 1.1 Role and molecular action of growth regulators in tissue culture 1.2 Direct transformation of protoplasts using PEG, electroporation, particlebombardment 1.3 *Agrobacterium* biology (Ti plasmids, Ri plasmids) 1.4 Ti plasmid based transformation **UNIT-2: Abiotic & Biotic Stress and Resistance of Crops:** 2.1 Abiotic stress: Physiological and molecular responses of plants to water stress,salinity stress, temperature stress 2.2 Stress perception and stress signaling pathways 2.3 Plant interaction with bacterial, viral and fungal pathogens, biochemical andmolecular basis of host plant resistance 2.4 Herbicide (glyphosate, phosphinothricin) and Pest (Bt toxin) resistance **UNIT-3: Molecular Breeding:** 3.1 Restriction based and PCR based markers; RFLP: methodology and applications,RAPD and AFLP: Principles, methodology and advantages, disadvantages and applications 3.2 Development of SCAR and SSR, ISSR markers 3.3 Other markers: CAPS, SNP, Comparison of different marker systems 3.4 QTL and MAS **UNIT-4: Molecular Farming & Applications:** 4.1 Definition and common perception of molecular farming 4.2 Transgenic plants as bioreactors 4.3 Relevance and advantages of plant based molecular farming 4.4 Edible vaccine; medicinally related proteins-antibodies (plantibodies), the oleosinsystem –Hirudinand Insulin production

Reference Books	1. Plant Biotechnology: An Introduction to Genetic Engineering by Adrian Slater, Nigel W. Scott, Mark R. Fowler. Oxford University Press, 2008. 2. Introduction to Plant Biotechnology. 2nd edition. By H. S. Chawla. Oxford & IBH publishing Co. Pvt. Ltd. New Delhi. 3. Plant Tissue culture: Theory and Practice, A revised Edition, S.S. Bhojwani and M.K. Razdan, Elsevier. 4. An Introduction to Plant Tissue Culture. 2nd Edition, by M. K. Razdan. Oxford & IBH Publishing Co. Pvt. Ltd.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment

Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: BTP-2005: Genomics and Bioprocess Technology

Course Code	**2005**
Course Title	**Genomics and Bioprocess Technology**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2018-2019
Purpose of Course	The purpose of the course is to make students recognize the basic principles of bioprocess technology and to understand bioprocesses for industrial applications and ways in which industrial productivity can be enhanced
Course Objective	To gain a hands-on experience in techniques used in bioprocess technology and their applications, principles involved in transport mechanisms and techniques involved in Upstream and downstream bioprocessing.
Course Outcomes	CO1: To learn the concepts of screening, optimization and maintenance of cultures and to introduce the students to the various concepts of microbial growth kinetics, fermentation and bioprocess engineering CO2: Understanding the different processes involved in bioprocess technology CO3: Integrating scientific and technological knowledge on the use of bioprocesses for industrial products on the cell and process level CO4……CO10: Developing and assessing the conditions for efficient and Sustainable design of bioprocesses
Mapping between COs with PSOs	
Pre-requisite	Basics of Biology, Biotechnology, Biochemistry, Microbiology

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■	■	■	■	■	
CO2	■	■	■	■	■	
CO3	■	■	■	■	■	
CO4		■	■	■	■	■
CO5	■	■	■	■	■	■
CO6	■	■	■	■	■	■
CO7	■	■	■	■	■	■
CO8	■	■		■		■
CO9	■	■		■		■
CO10	■	■		■		■

Course Content	**1.** Preparation of standard curve for estimation of antibiotic Penicillin. **2.** Preparation of standard curve for estimation of Citric acid **3.** Preparation of standard curve for estimation of Ethanol. **4.** Microbial fermentation of Penicillin 4.1. Determination of optimum pH for production of Penicillin. 4.2. Determination of optimum inoculum size for Penicillin production. **5.** Microbial fermentation of Citric acid 5.1. Determination of optimum pH for production of Citric acid. 5.2. Determination of optimum inoculum size for Citric acid production. **6.** Fermentative production of Ethanol using different substrates. **7.** Recovery of Citric acid and Ethanol from fermented broth/medium. **8.** Bioassay of antibiotic Penicillin. **9.** Soil DNA extraction by spin column method **10.** Total bacterial RNA extraction and separation by electrophoresis

Reference Books	1. Experimental Microbiology by Rakesh Patel, Volume 1 and 2 2. Lydersen, B. K., D'Elia, N. A., & Nelson, K. L. (Eds.). (2010). Bioprocess engineering: systems, equipment and facilities. Wiley India Pvt. Ltd. 3. Pricea, N and Newman, L. (2000) Demonstration of the principles of enzyme-catalysed reactions using alkaline phosphatase. Biochemistry and Molecular Biology Education. 28; 207-210 4. Vogel, H. C., & Todaro, C. M. (1996). Fermentation and Biochemical Engineering Handbook: Principles, Process Design and Equipment. William Andrew.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: BTP-2006: Agriculture Biotechnology & Aquaculture Technology

Course Code	**2006**
Course Title	**Agriculture Biotechnology & Aquaculture Technology**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2018-2019

Purpose of Course	The purpose of the course is to provide hands on experience in the practicals related to aquaculture and agriculture technology.
Course Objective	The course objective is to provide training to the students for the basics of animal and plant tissue culture based techniques.
Course Outcomes	CO1: To study commercially important fish and fresh water algae / Seaweeds and conduct proximate analysis of fish feed including crude proteins, crude lipids, carbohydrates, fibres, moisture and ash). CO2: To understand the basic guidelines for preparing review article. CO3: To gain experience on preparation and standardisation of plant tissue culture media (MS/B5). CO4: To perform the quantitative analysis of phenolic compounds and Flavonoids. CO5: To perform anti-oxidant assays like DPPH and ABTS and anti-oxidant enzyme assays like SOD, catalase, peroxidase and ascorbate peroxidase. CO6: To conduct in vitro screening tests for salinity and drought stress in plants and isolate DNA from plant source.
Mapping between COs with PSOs	
Pre-requisite	Basics of Biology, Biotechnology, Biochemistry, Microbiology

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■	■	■	■	■	■
CO2	■	■	■	■	■	■
CO3	■	■	■		■	
CO4		■	■	■		■
CO5	■		■		■	■
CO6	■	■		■		■

Course Content	**Aquaculture Technology:** **1.** To study commercially important fishes of South Gujarat region (Any 10 specimen) **2.** To study fresh water algae & sea weeds (Any 10 specimen) **3.** Proximate analysis of fish feed (Crude Proteins, Crude Lipids, Carbohydrates, Fibers,Moisture & Ash) **4.** Detection of White Spot Syndrome Virus in shrimps by PCR technique(Demonstration). **5.** Review Article on any recent/emerging areas of aquaculture **(OR)** Field Visit to any one place – Processing Unit (Fish/Prawn), Culture Farm (Fish/Prawn), Fish Feed development industry, Fisheries/Aquaculture Educational/Research Institute, Seaweed/Algal Culture facility, Fish/Algal Product development industry **Agriculture Biotechnology:** **1.** Standardization and preparation of commonly used Plant Tissue culture media (MS and Gamborg's B5) for *in vitro* regeneration of agriculturally important plants media. **2.** Quantitative analysis of important phytochemicals. **3.** Estimation of antioxidants and antioxidant enzymes - Ascorbate peroxidase,Superoxide dismutase, Catalase and Peroxidase. **4.** Rapid *in vitro* screening tests for abiotic stress tolerance (drought and salinity). **5.** Isolation of DNA from suitable plant source.

Reference Books	1. Dhindsa, Rajinder & PLUMB-DHINDSA, PAMELA & Thorpe, Trevor. (1981). Leaf Senescence: Correlated with Increased Levels of Membrane Permeability and Lipid Peroxidation, and Decreased Levels of Superoxide Dismutase and Catalase. Journal of Experimental Botany - J EXP BOT. 32. 93-101. 10.1093/jxb/32.1.93. 2. Senthilkumar M., Amaresan N., Sankaranarayanan A. (2021) Estimation of Catalase. In: Plant-Microbe Interactions. Springer Protocols Handbooks. Humana, New York, NY. 3. Reference: Re R, Pellegrini N, Proteggente A, Yang M, Rice-Evans C. Antioxidant activity applying an improved ABTS radical cationdecolorization assay. Free RadicBiol Med 1999;26:1231-7. 4. Blois, M.S. 1958. Antioxidant determination by the use of a stable free radical. Nat. 181: 1199-1200 5. Plant Tissue culture: Theory and Practice, A revised Edition, S.S. Bhojwani and M.K. Razdan, Elsevier. 6. Abraham Edit, Erdei Lasziv, Cabassa Cecile and Szabados Laszio. Methods for determination of proline in plants. Methods in molecular biology (Clifton, N.J.), March 2010. 7. The Fishes of India by Francis and Day

Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

M. Sc. Second Year

Course Code	**BT: 3001**
Course Title	Advances in Bioinformatics
Credit	4
Teaching per Week	4 Hours/week
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2019
Purpose of Course	The purpose of the course is to make the student capable of implementing the knowledge related to drug designing, primer designing, secondary structure prediction and modelling, gene prediction and phylogenetic analysis.
Course Objective	To study introduction of structural bioinformatics, conformational analysis of proteins and nucleic acids To understand the protein structure prediction, and molecular interactions. To understand the drug stereochemistry drug design and molecular modelling in drug design.
Course Outcomes	CO1: Understand the basic concepts on macromolecular structures and their interactions with special emphasis on computational biology. CO2: Decipher the methods involved for protein structure prediction. CO3: Recognize the principles and methods of macromolecular interactions. CO4: Understand the aspects of the steps involved in homology modelling. Grasp the knowledge on the basic concepts of QSAR.
Mapping between COs with PSOs	
Pre-requisite	Basic Fundamental of Science, Computer skill

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

Course Content	UNIT-1: MOLECULAR PHYLOGENY 1.1 Phenotypic & Molecular Phylogeny, Mechanism of Molecular Phylogeny 1.2 Representation of Phylogeny 1.3 Molecular Clocks 1.4 Methods of Phylogeny – UPGMA and NJ 1.5 Tools for Phylogentic analysis (PHYLIP) UNIT-2: GENE PREDICTION 2.1 Introduction to Gene Prediction (Finding of Genes, Finding of Exons, Exon to prediction of genes) 2.2 Types of Gene Prediction Programs (Splice site Prediction, Homology based gene prediction & Ab initio gene prediction) 2.3 Type of gene Prediction Methods-Laboratory based approach, Feature based approach, Homology based approach & Statistical & HMM based approach 2.4 Tools for Gene Prediction – GLIMMER, GENSCAN, ORF Finder UNIT-3: SECONDARY STRUCTURE PREDICTION & MODELLING 3.1 Methods for Secondary structure prediction: Chou Fasman, GOR 3.2 Softwares for Secondary structure prediction – GORIV, JPred4, APSSP2, CFSSP 3.3 Methods of Protein Modelling - Homology Modelling, Threading or fold recognition and Ab-initio structure prediction methods 3.4 Tools for protein structure modelling – Swiss Model 3.5 Ramachandran Plot for evaluation of predicted structure (Concept & Tool – RAMPAGE) UNIT-4: ADVANCES IN BIOINFORMATICS 4.1 Bioinformatics in Drug Designing: 4.1.1 Structural bioinformatics in drug designing 4.1.2 Application of QSAR in computer aided drug designing 4.2 Primer Designing: 4.2.1 Primer Selection, Primer Length, Melting Temperature (Tm), Specificity, Complementary Primer Sequence, G/C content, 3'end sequence 4.2.2 Designing a sequencing primer 4.2.2 Software for in silico primer designing: Primer Blast, Primer 3

Reference Books	REFERENCES: 1. Zhumur Gosh and Bibekan and Mallick "Bioinformatics: Principle and Application", Oxford University Press, 2008. 2. Simminder Kaur Thukral and OrpitaBosu, Pap/Cdr edition, "Bioinformatics: Database, Tools and Algorithms", Oxford University Press, USA, 2007. 3. S. C. Rastogi, N. Mendiratta and P. Rastogi, 2nd Edition "Bioinformatics: Concepts, Skill & Applications", CBS publisher & Distributor, 2009. 4. N. J. Chikhale and V.S. Gomase, 1st Edition, "Bioinformatics: Theory & Practices", Himalaya Publishing House Limited, 2007. 5. Lesk, A. K., "Introduction to Bioinformatics" 4th Edition, Oxford University Press, 2013. 6. Rukam S. Tomar, Manoj, V. Parakhia, Sunil V. Patel, B. A. Golakiya, "Molecular Markers and Plant Biotechnology" New India Publishing Agency, 2010.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment

Course Code	BT-3002
Course Title	Advances in Molecular Biology
Credit	4
Teaching per Week	4 Hours/week
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2019
Purpose of Course	The purpose of the course is to make the student capable of implementing the knowledge related to molecular biology and to use thesame for therapeutics and health research.
Course Objective	To make students acquainted with concepts of Molecular biology andtheir applications
Course Outcomes	CO1: Explain students about the structure and function of genes. To explain them about the number of genes, their location, distribution of genes and to gain idea about mini satellites and micro satellites. CO2: To help students gain knowledge regarding advances in RNA and RNA based technology that includes RNA interference study and its mechanism, different types of RNA and splicing mechanisms. CO3: To train students about PCR based technology, different types of PCR, DNA microarray technology and their application in medicine and diagnosis. CO4: To acquaint students about protein based molecular techniquesthat can be used for peptide synthesis in vitro, use of nano-based quantum dots and their application in field of diagnostics.
Mapping between COs with PSOs	
Pre-requisite	Basics of Mathematics, Data Structures

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■		■	■	■	■
CO2	■		■	■	■	■
CO3	■	■	■		■	
CO4		■	■	■		■

Course Content	UNIT-1: ADVANCES IN GENE STRUCTURE AND FUNCTIONS 1.1 Total Gene Numbers: In Bacteria and Eukaryotes 1.2 Gene number in Humans and the Y Chromosome 1.3 Distribution of genes and other sequences in genome 1.4 Introduction to Gene clusters and repeated sequences 1.5 Essential genes and study of expressed genes 1.6 Satellite and Mini-satellite DNA: In Arthropods and Mammals UNIT-2: ADVANCES IN RNA BIOLOGY 2.1 Riboswitches and noncoding RNAs 2.2 Bacterial Regulator RNAs: CRISPR-CAS system 2.3 miRNA, siRNA and piRNA 2.4 Mechanism of RNAi 2.5 Mechanism of splicing in Group I and Group II introns 2.6 Catalysis by RNase P and Viroid RNA UNIT-3: DNA BASED MOLECULAR BIOLOGY TECHNIQUES 3.1 PCR and its applications 3.2 Real-time Quantitative PCR 3.3 Southern blotting as diagnostic tool 3.4 Analysis of Repeatitive DNA Sequences 3.5 cDNA Microarrays and its medical applications 3.6 Analysis of SNPs UNIT-4: PROTEIN BASED MOLECULAR BIOLOGY TECHNIQUES 4.1 Introduction to peptide synthesis on solid-phase 4.2 Protein Microarray Technology 4.3 Epitope mapping 4.4 Recombinant Monoclonal Antibodies 4.5 Quantum dots 4.6 Overview of Antibody Phage Display

Reference Books	REFERENCES: 1. Krebs J, Goldstein E, Kilpatrick S, Lewin B. Lewin's Genes XI. Burlington, MA: Jones and Bartlett; 2014. 2. Walker J, Rapley, R. Molecular Biomethods Handbook, 2nd Ed., Humana Press; 2008.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	BT-3003
Course Title	Biotechnology Entrepreneurship Development
Credit	4
Teaching per Week	4 Hours/week
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2019
Purpose of Course	To understand the concepts of Entrepreneurial traits and recollect the biotechnological approaches to project design to project appraisal and development through entrepreneurship
Course Objective	To understand the concepts of Entrepreneurial traits.
Course Outcomes	CO1: Introducing the basic concepts in Bio entrepreneurship CO2: Updating the role of business ideas Bio products. CO3: Motivating the entrepreneurial development in life science CO4: To understand the concepts of business idea to project design to project appraisal. To understand the concepts of bioethics, product planning and development through entrepreneurship.
Mapping between COs with PSOs	
Pre-requisite	Basics of Mathematics, Data Structures

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

Course Content	UNIT-1: BIOTECHNOLOGY ENTREPRENEURSHIP 1.1 Introduction: Significance of the Biotechnology Entrepreneur, Integration of two distinctly different disciplines: Science & Business, Biotechnology entrepreneurship versus general entrepreneurship, Essential biotechnology versus entrepreneurial characteristics, Backgrounds of biotechnology entrepreneurs, Driving forces in decision making and learning from failure. 1.2 Fuel, Feed and Heal the world through Biotechnology Entrepreneurship: Industrial and Environmental Biotechnology, Food and Agricultural Biotechnology, Health Biotechnology. UNIT-2: FINANCE 2.1 Sources of Finance: Source of development finance, Project financing, Institutional financing to Entrepreneurs, Financial institutions, Role of consultancy organizations. 2.2 Financial Analysis: Ratio analysis, Investment process, Break even analysis, Profitability analysis, Budget and planning process. UNIT-3: MARKETING 3.1 Marketing Channels: Methods of marketing, Marketing channels, Marketing Institutions and Assistance, E-commerce: Benefits of E-commerce brand and Opportunities in India. 3.2 Setting up a Small Scale Industry: Location of an enterprise, Steps for starting a Small Industry, Incentives and Subsidies, Exploring Export Possibilities, Scheme of Assistance for Biotech Industry under existing Gujarat Biotech Policy. UNIT-4: BREAKTHROUGH-WHO MADE IT-GAME CHANGERS 4.1 Shantha Biotech: Unleashing Biotechnology in India. 4.2 Aravind Eye Hospital: Making a Dent in Global Blindness. 4.3 Centocor: Diagnostics Company on Monoclonal Antibodies. 4.4 Suguna Poultry Farm Ltd: Hard work, No compromise, No excuse. 4.5 The Surat Transformation: Urban Renewal.

Reference Books	REFERENCES: 1. Biotechnology Entrepreneurship (2014) Craig Shimasaki, Academic Press, USA. 2. Dynamics of Entrepreneurial Development and Management (2005) Vasant Desai, Himalaya Publishing House. 3. Making Breakthrough Innovation Happen: How Eleven Indians Pulled of the Impossible (2009) Porus Mushi, Harper Collins Publishers India. 4. The CII Entrepreneur Hand Book: Practical Advice for Starting a New Business (2010) Sushila Ravindranath, Westland Ltd. 5. The Game Changers: 20 extraordinary success stories of Entrepreneurs (2013) Y. Modi, R. Kumar & A. Kothari, Random House Publishers India Pvt. Ltd.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	BT-3004
Course Title	Cell & Tissue Culture Technology-II
Credit	4
Teaching per Week	4 Hours/week
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2019
Purpose of Course	The purpose of the course is to provide information about recent technological advancements in the area of cell and tissue culture technology
Course Objective	The objective of the course is to acquaint students about the gene expression and regulation in plants including various application of plant cell culture system. Also, to conceptualise about transgenic animals and cancer cell biology.
Course Outcomes	CO1: Students will gain understanding regarding the promoter-reporter contract in the plant cell culture and will also acquire knowledge of various bioinformatics tools for promoter identification and analysis. In-depth understanding of DNA foot printing, finger printing and gel shift analysis, ribozwitches and telomerase. CO2: Students shall gain understanding about recent techniques like Gateway technology, Activation tagging, Yeast complementation/two hybrid system, pull down assay, BiFC, tilling and eco tilling. CO3: Students shall develop basic concepts of chloroplast gene expression and chloroplast transformation. Also, get basic concepts of genome editing techniques like TALENS, Zinc finger nucleases, CRISPR/CAS9 etc. CO4: Students shall learn fundamentals of cell cytotoxicity assays and genotoxicity assays. Students shall have in-depth understanding of cell death pathways and regulation, stem cells and application, organ culture,

	histotypic culture, and transgenic animals. Students will gain basic concepts of cancer biology including oncogenes, tumor suppressor genes, immunotherapy and inhibition of cancer promoting proteins/angiogenesis.							
Mapping between COs with PSOs		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	
	CO1							
	CO2							
	CO3							
	CO4							
Pre-requisite	Basics of Science, Computer skill							

Course Content	UNIT-1: GENE EXPRESSION AND REGULATION IN PLANTS 1.1 In-silico analysis of the promoter to find out cis-acting elements, Promoterreporter construct to validate promoters in-vivo, DNA Foot Printing, Finger Printing, Gel Shift Analysis. 1.2 Inducible Expression System and Control of Transgene Expression through Inducible Promoters. 1.3 Ribozwitches, Aptamers and their Applications. 1.4 Telomerase Structure and Function. UNIT-2: APPLICATION OF PLANT CELL CULTURE SYSTEM 2.1 Plant Expression Vectors: Advantages of Conventional cloning Vs site specific recombination based cloning methods (Gateway Technology) 2.2 Functional analysis of genes: Activation tagging: A tool for plant gene discovery; Plant protein-protein interaction: Yeast Complementation, Yeast twohybrid, Pull down assay, BiFC; Tilling and eco-tilling. 2.3 Chloroplast Genes Expression, Chloroplast Transformation, 2.4 Genome editing and its applications. UNIT-3: ANIMAL CELL CULTURE TECHNOLOGY & TRANSGENIC ANIMALS 3.1 Cytotoxicity and Genotoxicity 3.2 Cell death and its regulation 3.3 Stem cells: Embryonic stem cells, adult stem cells, Induced pluripotent stem cells and regenerative therapy 3.4 Cell synchrony, organ culture, Histotypic culture 3.5 Introduction to transgenic animals; Techniques and Applications of animal Transgenesis UNIT-4: CANCER BIOLOGY 4.1 Basic properties of a cancer cell 4.2 The causes of cancer 4.3 Tumor-suppressor genes and oncogenes 4.4 Immunotherapy and Inhibition of cancer promoting proteins 4.5 Angiogenesis

Reference Books	REFERENCES: 1. Primrose S. B. and Twyman R. M. Principles of Gene Manipulation and Genomics; (7th Edition) Blackwell Publishing 2. Genomes, T. A. Brown, Oxford: Wiley-Liss; 2002 3. Old R. W. and Primrose S.B. Principles of Gene Manipulation: An Introduction to Genetic Engineering. University of California Press. 4. Gene IX by B. Lewin. Jones & Bartlett Learning, 2008. 5. Adrain Slater, Nigel Scott and Mark Flower A.Plant Biotechnology – The Genetic manipulation of Plants, Oxford University Press. 6. Ian R. Freshney, Culture of animal cells: a manual of basic technique and specialized applications, 6th Ed., Willey Blackwell pub. 7. Houdebine L.M., 2003, Animal Transgenesis and Cloning, John Wiley and Sons, Ltd. 8. Karp G., Cell and Molecular Biology: concepts and experiments, 7th Ed.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	BTP-3005
Course Title	Bioinformatics & Molecular Biology
Credit	4
Teaching per Week	4 Hours/week
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2019
Purpose of Course	To provide practical knowledge to the students related to Bioinformatics software and Molecular biology.
Course Objective	To help them gain hands on and skill trainingrelated to bioinformatics tool and applicable techniques of molecular biology.
Course Outcomes	CO1: Students will able perform practicals on phylogenetic analysis using NJ Plot CO2-CO6: To perform secondary structure prediction and homology modeling, also analysis the protein by Ramachandran plot. CO7-CO10: Students will be given the hands-on trainingfor molecular biology-based techniques like DNA extraction, protein extraction. To provide them hands on training for the advanced techniques like SDS-PAGE and PCR, that have future application in medicine and therapeutics.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						
CO6						

	CO7							
	CO8							
	CO9							
	CO10							
Pre-requisite	Basics of Science, Computer skill							

Course Content	1. Creation of Cladogram/Phylogram using Simple Phylogeny/NJPLOT. 2. Predict ORF using ORF Finder. 3. Predict secondary structure using GORIV/JPred4. 4. Perform Homology modelling using Swiss model. 5. Perform evaluation of predicted protein by Rampage. 6. Perform Primer designing using Primer 3 / Blast Primer. 7. Separation of λ DNA digests using low-melting agarose electrophoresis, postelectrophoretic DNA elution from gel and purification by solvent /agarase enzyme method. 8. Isolation of chromosomal DNA from Saccharomyces cerevisiae / *Aspergillus niger.* 9. In vitro amplification of specific DNA fragments by Polymerase Chain Reaction. 10. SDS-PAGE separation of protein mixture, Silver/Coomassie staining of SDS-PAGE gel.

Reference Books	1. MOLECULAR CLONING: A LABORATORY MANUAL by Michael R.Green and Joseph Sambrook. 2. Himedia guidemanual for conventional Polymerase chain reaction.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	BTP-3006
Course Title	Cell Culture Technology-II
Credit	4
Teaching per Week	4 Hours/week
Minimum weeks per Semester	15
Effective From	
Purpose of Course	The purpose of the course is to provide hands on experience to students to the plant and animal cell culture practicals
Course Objective	The course objective is to provide training to the students for the basics of animal and plant tissue culture based techniques.
Course Outcomes	CO1: To perform direct/indirect organogenesis of agriculturally important plant/crops CO2: To conduct assay for GST/PPO/TAC for the plants CO3: To gain hands-on experience on plant RNA isolation CO4: To perform genotoxicity assay like micronucleas/DNA fragmentation assay CO5: To determine GST activity in serum CO6-CO10: To determine SOD/Catalase/LDH activity to evaluate cytotoxicity Chemicals
Mapping between COs with PSOs	
Pre-requisite	Basics of Sciences

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■		■	■	■	
CO2	■		■	■	■	
CO3	■	■	■	■	■	
CO4		■	■	■	■	■
CO5	■		■	■	■	■
CO6	■	■	■	■	■	■
CO7	■	■	■	■	■	■
CO8	■	■	■	■	■	■
CO9	■	■	■	■	■	■
CO10	■	■	■	■	■	■

Course Content	1. Direct organogenesis (In vitro clonal Propagation) of any plant ofagriculture/medicinal/horticultural importance. 2. Indirect organogenesis of plant of commercial importance. 3. Isolation of RNA from suitable plant source. 4. Assay of glutathione s-transferase (GST) and polyphenol oxidase(PPO). 5. Evaluation of Total antioxidant Capacity (TAC) of plants. 6. To perform Genotoxicity by Micronucleus assay and DNAfragmentation assay. 7. To perform Cytotoxicity by MTT/XTT or MTS assay. 8. Estimation of GST activity in serum/cell lysates. 9. Study of effect of cytotoxic chemicals on cells by different marker parameters (Super Oxide Dismutase and Catalase). 10. To estimate Lactate Dehydrogenase activity from cells.

Reference Books	1. EZcountTM Lactate Dehydrogenase Cell Assay Kit, CCK036, Himedia 2. Marc D. Anderson', Tottempudi K. Prasad*, and Ceci1 R. Stewart. Changes in lsozyme Profiles of Catalase, Peroxidase, and Glutathione Reductase during Acclimation to Chilling in Mesocotyls of Maize Seedlings'. Plant Physiol. (1 995) 109: 1247-1 257 3. Sylwester Sommer 1,*, Iwona Buraczewska 1 and Marcin Kruszewski. Micronucleus Assay: The State of Art, and Future Directions. International journal of Molecular sciences. 2020, 21, 1534. 4. Arul P, Shetty Smitha, Suresh Masilamani, Akshatha C. Micronucleus Assay in Exfoliated Buccal Epithelial Cells Using Liquid Based Cytology Preparations in Building Construction Workers. Iranian Journal of Pathology. 2018, 13.1. 5. Guha P, Das A, Dutta S, Chaudhuri TK. A rapid and efficient DNA extraction protocol from fresh and frozen human blood samples. J Clin Lab Anal. 2018;32:e22181.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Semester X

Course Content	BT: R-4001: Seminar Presentation: A seminar presentation will be made during the external examination by the candidates before the examiners based on the theme area or recent developments in Animal/Microbial/Plant Biotechnology. Power point presentation should be done using 25-30 slides and total time period allotted to candidate shall be 15 minutes which will include time for viva-voce. BT: R-4002: Review of Published Research Paper/Article: Oral presentation will have to be made on a selected research paper from the reputed Journal by the candidate before external examiners. List of 10 research articles shall be recommended by Board of Studies in Biotechnology every year and to be provided to all affiliated colleges running M. Sc. Biotechnology course. BT: R-4003: Poster Presentation: One poster related to research work done by the students is to be presented before external examiners. Size of the research poster prepared for external evaluation shall be 2 ft X 3 ft (portrait or landscape) and screen/digital/flex printing is allowed. Poster already prepared for participation in any seminar/conference/symposium during Semester-X can also be considered for evaluation in external examination. Student is required to produce certificate of participation as a proof that he/she has participated during Semester-X and work presented is his/her own work. BT: R-4004: Dissertation on Biotechnology (Duration for work: Minimum 3 Months) A project work should be done individually on topic related to any one of the following area justifying Animal, Microbial or Plant Biotechnology. The candidate may be allowed to work at some outside institutions as specified in rules and guidelines. Thesis will be sent for evaluation by college as per directions given by Chairman/Chairperson appointed for BT: R-4004 to external examiner for assessment. Candidate has to present his/her work in the form of presentation in external examination.

Semester X

B: Skill Based

Course Code	BT: S-4001
Course Title	ESSENTIAL SKILLS FOR BIOPHARMACEUTICAL INDUSTRY
Credit	4
Teaching per Week	4 Hours/week
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2019
Purpose of Course	The course aims to impart the knowledge of theoretical aspects of Biopharmaceuticals, their production, downstream processing and product analysis.
Course Objective	To make students understand theapplications, production and analysis of the Biopharmaceuticals.
Course Outcomes	CO1: The first unit of the course covers the introduction and classes of biopharmaceuticals, use of biopharmaceuticals for gene therapy and manufacture of Biopharmaceuticals. Additionally, it also covers the aspects related to pharmacokinetic, toxicological, and drug delivery issues. CO2: The second unit of the course allow the students to understand about heproduction of the Biopharmaceuticals. Within this segment, students will be able to understand about the sources of the biopharmaceuticals as wellas upstream process methodologies involved in biopharmaceutical production. CO3: Once the upstream processes are completed, next step in biopharmaceutical production is downstream processes. Thecourse alsocovers this aspect where students will be able to understand the theoretical aspects of cell disruption, product concentration, chromatographic purifications and final product formulation, etc. CO4: The last segment of the course focuses on final product analysis which includes identification of product impurities by using different approaches. It also covers the aspects why and how the endotoxin and pyogenic contamination should be avoided in final pharmaceutical product.
Mapping between COs with PSOs	
Pre-requisite	Basics of Sciences

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

Course Content	UNIT-1: BIOPHARMACEUTICALS 1.1 Introduction and classes of biopharmaceuticals 1.2 Gene Therapy 1.3 Manufacture of Biopharmaceuticals 1.4 Pharmacokinetic, toxicological and drug delivery issues 1.5 Case Study of Biopharmaceuticals: Insulin Lispro (Humalog) and Monoclonal Antibodies UNIT-2: PRODUCTION OF BIOPHARMACEUTICALS 2.1 Sources of biopharmaceuticals 2.1.1 Escherichia coli 2.1.2 Animal cell culture systems 2.1.3 Additional systems 2.2 Upstream Processing for biopharmaceutical production: 2.2.1 Cell banking system 2.2.2 Microbial cell fermentation 2.2.3 Mammalian cell culture system UNIT-3: DOWNSTREAM PROCESSING OF BIOPHARMACEUTICALS 3.1 Cell disruption and Initial recovery 3.2 Product concentration 3.3 Chromatographic Purification 3.4 HPLC of proteins and recombinant proteins 3.5 Final product formulation UNIT-4: PRODUCT ANALYSIS 4.1 Protein based contaminants 4.2 Removal of altered forms of proteins 4.3 Detection of protein based impurities 4.4 Immunological approaches of detection 4.5 Endotoxins and other pyrogenic contaminants

Reference Books	REFERENCES: 1. Rang, H. P., Drug Discovery and development. Churchill Livingstone Elsevier, 2006. 2. Crommelin, D.J.A., Sindelar, R.D. and Meibohm. B., Pharmaceutical Biotechnology: fundamentals and applications. Informa Helthcare, 2008. 3. Walsh, G., Pharmaceutical Biotechnology: Concepts and Applications. John Wiley & Sons, 2007. 4. Walsh, Gary, and Brendan Murphy, eds. Biopharmaceuticals, an Industrial Perspective. Springer Science & Business Media, 1999.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	BT: S-4002
Course Title	ESSENTIAL SKILLS FOR BIO-SERVICES AND BIO-AGRI INDUSTRIES
Credit	4
Teaching per Week	4 Hours/week
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2019
Purpose of Course	The purpose of the course is to make the student capable of implementing the knowledge related to Assisted reproductive technology and IVF.
Course Objective	To make students acquainted with concepts of IVF and the protocols related to the same.
Course Outcomes	CO1: Explain students the basics of fertilization. To explain them how to investigate couples for IVF treatment and use of fertilization basics in assisted reproduction. CO2: To help students gain knowledge regarding in vitro maturation, types of media used in embryo culture, composition of media used in embryo culture. The basics of Gamete micromanipulation. CO3: To train students regarding different techniques used to study the basics of ICSI, preparation methods for sperm retrieval and maintenance. To make them aware about the protocols for cryopreservation of sperms and eggs. CO4: To acquaint students about seed technology, to explain them different seed types, process for hybrid production, characterization of hybrids, application of CRISPR/Cas9 in crop improvement.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

Pre-requisite	Basics of Sciences

Course Content	UNIT-1: INTRODUCTION OF IN VITRO FERTILIZATION 1.1 Biological basis of fertilization 1.2 Indications for IVF treatment 1.3 Initial investigation of the infertile couple 1.4 Fertilization in assisted reproduction 1.5 Role of Assistant reproduction technology nurse UNIT-2: OOCYTE AND EMBRYO HANDLING IN A. R. T. 2.1 In vitro Maturation in treatment 2.2 Outline of IVM treatment cycle 2.3 Types of media for embryo culture 2.4 Composition of embryo culture media 2.5 Gamete micromanipulation UNIT-3: SPERM PROCESSING IN A. R. T. 3.1 Sperm collection 3.2 Sperm preparation methods 3.3 Post-separation treatment of spermatozoa 3.4 Intracytoplasmic sperm injection 3.5 Protocols of cryopreservation UNIT-4: PRACTICAL SEED TECHNOLOGY 4.1 Types of seeds: Nucleus seed, Breeder seed, Foundation seed, Registered seed and certified seed 4.2 Role of male sterility in hybrid production 4.3 Assessment of genetic purity of lines and hybrids 4.4 Characterization of Lines and Hybrids for Intellectual Property Rights Protection 4.5 Recent advancement in crop improvement via genome editing:a case study for application of CRISPR- Cas9/Cpf1 in crop improvement

Reference Books	REFERENCES: 1. Gardner DK, Weissman A, Howles CM, Shoham Z, editors. Textbook of assisted reproductive techniques 5th Ed: Volume 2: Clinical perspectives. CRC press; 2018. 2. Gardner DK, editor. In vitro fertilization: a practical approach. CRC Press; 2006 Sep 29.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	BT: S-4003
Course Title	ESSENTIAL SKILLS FOR CLINICAL LABORATORIES
Credit	4
Teaching per Week	4 Hours/week
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2019
Purpose of Course	The purpose of the course is to provide insights about basics knowledge and skills for clinical laboratories.
Course Objective	To make student aware about various clinical methods for analysis of various samples and organisms.
Course Outcomes	CO-1-to give students basic knowledge of culture media and analysis of various samples CO-2-it will provide students insight of various marker test which make them able to differentiate between the disease. CO-3-it will give knowledge of various diagnostic methods for different disease CO-4-it helps students for cytogenetic study and automation of clinical laboratories.
Mapping between COs with PSOs	
Pre-requisite	Basics of Sciences

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

Course Content	UNIT-1: CLINICAL MICROBIOLOGY 1.1 Culture media: Composition, types and forms 1.2 Study of Escherichia, Salmonella, Leptospira andMycobacterium 1.3 Routine urine examination 1.4 Routine examination of faeces 1.5 Routine examination of semen and semen washing 1.6Routine examination of sputum UNIT-2: CLINICAL BIOCHEMISTRY 2.1 Cardiac profile tests 2.2 Kidney function tests 2.3 Liver function tests 2.4 Laboratory determination of lipids in serum 2.5 Determination of hormones 2.6 Determination of glucose and glycosylated haemoglobin UNIT-3: DIAGNOSTIC SEROLOGY 3.1 Widal test and Immunological pregnancy test 3.2 Detection of rheumatoid factor and CRP 3.3 Detection of HBsAg 3.4 Detection of Dengue Fever and Leptospira IgM 3.5 Detection of malarial parasite by strip test and microscopy 3.6 Detection of allergens and antinuclear antibodies UNIT-4: CYTOGENETICS AND AUTOMATION IN CLINICAL LABORATORIES 4.1 Cell culture, Karyotyping and FISH 4.2 Prenatal chromosomal diagnosis 4.3 Molecular diagnosis of genetic diseases 4.4 Automation in bacteriology 4.5 Discrete autoanalyzers 4.6 Introduction to working of semi-autoanalyzer

Reference Books	REFERENCES: 1. Godkar P, Godkar D. Textbook of Medical Laboratory Technology. 3rd Ed. Mumbai: Bhalani Publishing House; 2014. 2. Murray P. Manual of Clinical Microbiology. Washington, DC: ASM Press; 2011.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	BT: S-4004
Course Title	SKILL ENHANCEMENT LABORATORY WORK
Credit	4
Teaching per Week	4 Hours/week
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	2019
Purpose of Course	The purpose of the course is to make the student capable of performing skill-based experiments related to IVF.
Course Objective	To allow students to fetch the practical knowledge and hands on training related to IVF.
Course Outcomes	CO1: To provide them hands on training related to IVF based techniques, identification of problems related to urinary tract infection and diagnosis of suspected diseases. CO2: To help students gain practical knowledge related to handling of sperms, measuring viability of sperms, their motility. CO3: To train students about use of PCR for disease diagnosis and purification of different recombinant proteins using chromatography techniques. CO4-CO9: To acquaint students about role of cryopreservation in storage of gametes. To teach them estimation of blood sugar and urea level. CO10-CO14: Students will learn applications by Demonstration method.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

	CO5							
	CO6							
	CO7							
	CO8							
	CO9							
	CO10							
	CO11							
	CO12							
	CO13							
	CO14							
Pre-requisite	Basics of Sciences							

Course Content	1. Purification his-tagged recombinant proteins from bacterial hosts. 2. Detection of Endotoxins in pharmaceutical products by LAL test. 3. Routine chemical and microscopic examination of urine. 4. Microbiological diagnosis of suspected infection of Salmonella. 5. Microbiological diagnosis of Urinary Tract Infection. 6. Estimation of blood sugar by GOD method. 7. Estimation of blood urea by DAM method. 8. PCR based diagnosis of tuberculosis. 9. Identification and differentiation of Bt-cotton and Non Bt-cotton. 10. Microscopic examination of semen to study spermatozoaabnormalities (Demonstration). 11. Dilution and washing of spermatozoa (Demonstration). 12. Study of Intracytoplasmic sperm injection process (Demonstration). 13. Study of the Cryopreservation, Thawing and Vitrification of embryo(Demonstration). 14. Visit to the Assisted Reproduction Treatment (ART) centre / Clinicaldiagnostic laboratory / Seed research facility or Agriculture biotechnology research laboratory.

Reference Books	REFERENCES: 1. Experimental Microbiology volume 1 and 2 by Rakesh Patel.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

P.G. Diploma Course in Molecular & Biochemical Technology

Name of Program	**P.G. Diploma Course in Molecular & Biochemical Technology**
Abbreviation	**PGD :MB**
Duration	**1 Year**
Eligibility Criteria	Graduates with minimum 50% aggregate in the disciplines of B. Sc. Life Sciences, B. Sc. Botany/Biochemistry/ Microbiology/ Zoology/ Applied Zoology/ Applied Sciences/ Biomedical Sciences/Biological Sciences/ Biotechnology/B. Tech/Biotech. and B. Pharm.
Objective of Program	This course aims to provide an interdisciplinary edge to young professionals to make a career in Molecular & Biochemical Technology. It has been found that graduates from non-life sciences Back ground find it difficult to gain footing in such industries. This course will provide such individuals a basic understanding of Biophysical Technology, Recombinant DNA Technology and Immunology. This will give them advantage over traditional degree holders. The nature of this course is broad based and will give a good insight into modern biology and important component of hands-on training to the students
Program Outcome	PO1: Students are expected to know fundamental concepts in manipulations and applications of Plant, Animal and Microbial systems. PO2: Trained students in Molecular & Biochemical Technology principles could be used to probe biological questions or to develop technologies, devices and systems that require substantive expertise in Biology, Agriculture, Pharmaceutical, Industrial, as well as Clinical Research components. PO3: Analyse and interpret results generated through studies in Master of Science, taxonomical treatments, field studies, excursion tours and laboratory techniques used in the subject. Identify credible scientific sources to interpret and evaluate the evidences. PO4: Students would perform functions that demand higher competence in national/international organizations with sporty spirits and helping each other.
Program Specific Outcomes	PSO1: Our diploma graduates will develop skills and gain understanding to examine and describe living system in terms of molecules that will provide strong foundation in biochemical techniques. PSO2: Students will build comprehensive working knowledge of advance molecular techniques with its practical application in Recombinant DNA technology. PSO3: Students will deliver seminar in molecular biology and biochemistry topics and rigorously proving disproving the explanation through experimental sciences, generating new knowledge.

<table>
<tr><td></td><td>PSO4: Students will be offered selection of short term research project title covering various aspects of molecular biology and biochemistry wherein they will get opportunity to work full time in real research environment.

PSO5: Students will gain an insight into molecular and cellular basis of immune responsiveness and demonstrate capacity to transfer knowledge of immunity.

PSO6: Course offers broad range of Career options in academics, pharma industry and medicinal research at National and International level.</td></tr>
<tr><td>Mapping between POs and PSOs</td><td>
<table>
<tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td><td>PSO6</td></tr>
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P.G. Diploma Course in Molecular & Biochemical Technology

Program Structure		Semester I						
Course Code	**Title**	**Teaching per week**		**Course Credits**	**University Examination**		**Internal Marks**	**Total Marks**
		Theory	**Practical**		**Duration**	**Marks**		
PGD: MB-101	**Module 1: Biophysical Techniques-1**	60	0	4	3 Hrs	70	30	100
PGD: MB-102	**Module II: Recombinant DNA Technology -1**	60	0	4	3 Hrs	70	30	100
PGD: MB-103	**Module III: Immunology–I**	60	0	4	3 Hrs	70	30	100
PGD: MB-104	**Labwork-I**	0	30	2	3 Hrs	70	30	100
PGD: MB-105	**Labwork-II**	0	30	2	3 × 5 Hrs	70	30	100
PGD: MB-106	**Labwork-III**	0	30	2	3 × 5 Hrs	70	30	100
	Total	180	90	18		420	180	600
Program Structure		Semester II						
Course Code	**Title**	**Teaching per week**		**Course Credits**	**University Examination**		**Internal Marks**	**Total Marks**
		Theory	**Practical**		**Duration**	**Marks**		
PGD: MB-201	**Module VIII: Biophysical Techniques–II**	60	0	4	3 Hrs	70	30	100
PGD: MB-202	**Module IX: Recombinant DNA Technology–II**	60	0	4	3 Hrs	70	30	100
PGD: MB-203	**Module X: Immunology–II**	60	0	4	3 Hrs	70	30	100
PGD: MB-204	**Labwork-IV**	0	30	4	3 Hrs	70	30	100
PGD: MB-205	**Labwork-V**	0	30	4	3 × 5 Hrs	70	30	100
PGD: MB-206	**Labwork-VI**	0	30	4	3 × 5 Hrs	70	30	100
	Total	180	90	18		420	180	600

Course Code	**PGD: MB-101**
Course Title	**Module 1: Biophysical Techniques-1**
Credit	4
Teaching per Week	60

<table>
<tr><td>Minimum weeks per Semester</td><td>15 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective From</td><td>June 2019</td></tr>
<tr><td>Purpose of Course</td><td>Course basically focused on quantification, purification and separation of protein as well as plant tissue and animal tissue culture. To aim of this study imparts fundamental steps for analyzing, structural and functional specification of protein.</td></tr>
<tr><td>Course Objective</td><td>To make students involves in fundamental knowledge of protein estimation, purification and separation techniques. Students will gain basic knowledge about handling, processing and maintaining cell lines related to animal and plant cell culture.</td></tr>
<tr><td>Course Outcomes</td><td>CO1: The course covers quantification of proteins by using spectro-photometric analysis with regarding calculations of protein and nucleic acid concentration.

CO2: This module deals with the separation of protein by different chromatographic techniques on the basis of size, charge or functional group of amino acids.

CO3: This module deals with the recovery of protein after separation and quantification. It also explains about specific activity and estimation of of isolated proteins. Vmax and Km values are also included for better understanding.

CO4: These modules deal with basic understanding of plant and animal cell culture, development of cell line and maintenance and applications. Student will able to learn about different cell lines for research purpose. They will get basic idea to handle about plant and animal cell line.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td><table>
<tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td><td>PSO6</td></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>Pre-requisite</td><td>Basic Science, Biotechnology</td></tr>
</table>

Course Content	**Unit 1: Quantification of Proteins:** 1.1. Principles of Spectrophotometry: ultraviolet- visible absorption spectrophotometry 1.2. Visible recording of spectra for proteins and nucleic acids 1.3. Calculation of concentration of protein and nucleic acids from spectrum 1.4. Fluorescence spectroscopy 1.5. Mass spectrometry **Unit 2: Separation of Proteins:** 2.1. Thin Layer Chromatography 2.2. Gel Filtration Chromatography 2.3. Ion Exchange Chromatography 2.4. Affinity Chromatography 2.5. Gas Liquid Chromatography **Unit 3: Purification of proteins & Basic concept of Enzyme:** 3.1. Protein precipitation by using salts, organic solvents, organic polymers 3.2. Dialysis and Membrane Filtration 3.3. Enzymes: Basic features of Enzyme and Catalysis 3.4. Estimation of, Vmax and Km using Lineweaver – Burke plot 3.5. Enzyme Inhibition, Specific activity **Unit 4: Tissue Culture:** 4.1. **Plant Tissue Culture:** Concept of Totipotency, Callus, Tissue Culture media, Phytohormones, Cybrids 4.2. Cell, Tissue and Organ culture, Somatic Embryogenesis, Organogenesis, Applications (Somatic hybridization, embryo rescue, virus-free plants, somaclonal variations) 4.3. **Animal Tissue Culture:** Primary Culture, Cell Lines, Continuous Cell Lines (transformation, anchorage independence, contact inhibition) 4.4. Set up of Plant and Animal Tissue culture laboratory 4.5. Applications of Tissue Culture
Reference Books	Biochemistry and Molecular Biology, Keith Wilson & John Walker (6th Edition, 2008) Cambridge University Press. 2. Physical Biochemistry, Freifelder (2nd Edition, 1982) W. H. Freeman and Co. 3. Principles of Biochemistry, Lehninger, Nelson and Cox (5th Edition, 2008) W. H. Freeman and Co. 4. Modern Industrial Microbiology and Biotechnology, Nduka Okafor (2007) Science Publishers. 5. Plant Tissue Culture Theory and Practice, Bhojwani and Razdan (2008) Elsevier. 6. Culture of Animal Cells, Freshney (4th Edition, 2000) Wiley-Liss Inc.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

<table>
<tr><td>Course Code</td><td>PGD: MB-102</td></tr>
<tr><td>Course Title</td><td>Module II: Recombinant DNA Technology -1</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per Week</td><td>60</td></tr>
<tr><td>Minimum weeks per Semester</td><td>15 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective From</td><td>June 2019</td></tr>
<tr><td>Purpose of Course</td><td>The course focuses on critical aspects of Recombinant DNA technology. The aim is to impart the knowledge of basic fundamentals regarding restriction enzymes, cloning vectors, linkage, DNA library, methylations and different screening methods.</td></tr>
<tr><td>Course Objective</td><td>To make students understand basic tools and techniques of recombinant DNA technology.</td></tr>
<tr><td>Course Outcomes</td><td>CO1: The first unit of the course will focus on the basic tools that are used in recombinant DNA technology and various Enzymes. It includes detail knowledge of different restriction enzymes, polymerases, reverse transcriptase and ligases.

CO2: The course also covers the knowledge of cloning vectors, in which students will learn about basic biology of plasmids, plasmid based vectors, lambda phage and M13 bacteriophage based vectors and also the high capacity vectors. It covers the basic properties, coverage, application and usage of these vectors.

CO3: The third unit of the module imparts the knowledge of linking different types of DNA molecules and along with it, also covers generation of DNA libraries.

CO4: With last unit of the module students will be able to learn Different DNA methylation systems that are found in E. coli. Additionally, it also covers the different screening methods that can be applied for screening of recombinant clones. Students will also be able to learn about sequence dependent and independent screening, prob dependent screening and HRT, HERT methods, etc.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td><td>PSO6</td></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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	CO3 ■ ■ ■ ■ ■ ■ CO4 ■ ■ ■ ■ ■ ■
Pre-requisite	Basic Science, Biotechnology
Course Content	**Unit 1: Restriction Enzymes:** 1.1. Types, Properties, Nomenclature 1.2. DNA polymerases: DNA Polymerase I, Klenow fragment, T4 DNA Polymerase, T7 DNA Polymerase 1.3. RNA Polymerases: T3, T7, SP6 1.4. Reverse Transcriptase: AMV, MoMLV 1.5. Ligases: T4 DNA ligase*, E. coli* DNA ligase **Unit 2: Cloning Vectors:** 2.1. Biology of plasmids (conjugative, non-conjugative, relaxed and stringent control of copy number, incompatibility) 2.2. Plasmid based vectors (Direct and indirect selection) 2.3. Biology of Lambda phage (lytic versus lysogenic cycle) and M13 bacteriophage, 2.4. λ bacteriophage based vectors (insertional and replacement), *in vitro* packaging and M13 phage based vectors, phagemids. 2.5. High capacity vectors: Cosmids, P1 phage based vectors, PACs, YACs, BACs. **Unit 3: Linkage & DNA Library:** 3.1. Creating new restriction sites by DNA manipulation, Linkers, Adapters 3.2. Covalent linkage of DNA fragments to vector molecules: conversion adaptors, homopolymer tailing (recovery of DNA insert after homopolymer tailing). 3.3. Generation of genomic and cDNA libraries (mRNA source, integrity, enrichment techniques, different methods of first strand and second strand of cDNA synthesis) 3.4. Limitations of cDNA synthesis (5'end RACE, 3' end RACE) 3.5. Solid Phase Synthesis of DNA: Phosphoramidite based **Unit 4: DNA Methylation systems & Screening Techniques:** 4.1. DNA methylation systems in *E. coli* (dam, dcm) 4.2. Selection and screening of recombinant clones: Radiolabelled probe preparation via nick translation, random priming, 3' end labeling, 5'end labeling, Guessmers and degenerate probes 4.3. Non-radioactive probes preparation using Biotin, Digoxigenin 4.4. Sequence dependent and independent screening: PCR based colony and plaque hybridization, functional screening, immunological screening, gain of function screening. 4.5. HRT & HART

Reference Books	1. Principles of Gene Manipulation and Genomics, S.B. Primrose & R.M. Twyman (7th Edition,2006) Blackwell Publishing. 2. Molecular Cloning (A Laboratory Manual), Sambrook and Russell (3rd Edition, 2001) CSHL Press.
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	**PGD: MB-103**
Course Title	**Module III: Immunology–I**
Credit	4
Teaching per Week	60
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The purpose of the course is to provide insights about basics of functioning of immune system
Course Objective	To acquaint students with the concepts of immune cells, antigen-antibody structure, interactions and B cell biology
Course Outcomes	CO1: To acquaint students with organization of immune systems, Lymphoid and myeloid cells, dendritic cells and Natural killer cells. CO2: . To elaborate on immunogenicity and antigenicity, structure of immunoglobulins, and monoclonal antibodies. CO3: Students will acquire concepts of antigen-antibody interactions, structure of MHC molecules and antigen processing/presentation pathways. CO4: Students will gain fundamentals of B cell maturation, activation and proliferation, class switching, and generation of antibody diversity.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						

	CO2 ▓ ▓ ▓ ▓ ▓ `11 CO3 ▓ ▓ ▓ ▓ ▓ CO4 ▓ ▓ ▓ ▓ ▓
Pre-requisite	Basic Science, Biotechnology
Course Content	**Unit 1: Overview of the Immune System:** 1.1. Historical Background, Innate Immunity, Toll Like Receptors 1.2. Organization of the Immune System 1.3. Primary & Secondary Lymphoid Organs 1.4. Myeloid Cells and Lymphoid Cells 1.5. Dendritic Cells and Natural Killer Cells **Unit 2: Antigens & Antibodies:** 2.1. Immunogenicity and Antigenicity 2.2. Factors that influence Immunogenicity 2.3. Haptens, Carrier, Epitopes, Cross Reactivity 2.4. Structure of Immunoglobulins, Immunoglobulin subtype, B cell receptor, Isotype, Allotype, Idiotype 2.5. Monoclonal Antibodies **Unit 3: Antigen Antibody Interactions:** 3.1. Affinity, Avidity, Cross reactivity, Precipitation Reactions, Agglutination Reactions 3.2. Immunofluorescence, Fluorescence activated cell sorter, Complement Tests, ELISA, RIA 3.3. The Major Histocompatibility Complex: Structure and cellular distribution of MHC molecules 3.4. Peptide binding by MHC, MHC and Immune responsiveness 3.5. Antigen Processing and Presentation: Cytosolic and Endocytic Pathway **Unit 4: B Cell Biology & Antibody Diversity:** 4.1. The response of B cells to antigen: B cell maturation, activation and proliferation 4.2. Signaling pathways leading to B cell activation, Germinal centers 4.3. Formation of Plasma cells, Memory cells, Class Switching 4.4. Generation of Antibody Diversity: Multi Gene Organization of Immunoglobulin Genes 4.5. Mechanism of Gene Rearrangement
Reference Books	1. Immunology, Janis Kuby (6th Edition, 2007) Freeman and Company. 2.Immunobiology, Janeway, Travers, Walport, Sclomchik (6th Edition, 2005) 9 Garland publishing
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

<table>
<tr><td>Course Code</td><td>PGD: MBL-104</td></tr>
<tr><td>Course Title</td><td>Labwork-I</td></tr>
<tr><td>Credit</td><td>2</td></tr>
<tr><td>Teaching per Week</td><td>30</td></tr>
<tr><td>Minimum weeks per Semester</td><td>15 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective From</td><td>June 2019</td></tr>
<tr><td>Purpose of Course</td><td>The purpose of the course is to provide hands on experience on bioprocess and enzyme technology related practicals.</td></tr>
<tr><td>Course Objective</td><td>To acquaint students with the practicals related to bioprocess and enzyme technology</td></tr>
<tr><td>Course Outcomes</td><td>CO1: To perform time course/temperature/pH optima of alkaline phosphatase.

CO2: To determine double reciprocal curve kinetics of alkaline phosphatase

CO3: To determine spectrophotometric analysis of nucleic acids and proteins

CO4: to gain hands on experience on dialysis and ammonium sulphate precipitation

CO5-CO8: to perform qualitative analysis of phytochemical and to isolate protoplast from plant cells</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><th></th><th>PSO1</th><th>PSO2</th><th>PSO3</th><th>PSO4</th><th>PSO5</th><th>PSO6</th></tr>
<tr><td>CO1</td><td>■</td><td></td><td>■</td><td>■</td><td>■</td><td>■</td></tr>
<tr><td>CO2</td><td>■</td><td></td><td>■</td><td>■</td><td>■</td><td>■</td></tr>
<tr><td>CO3</td><td>■</td><td>■</td><td>■</td><td></td><td>■</td><td></td></tr>
<tr><td>CO4</td><td></td><td>■</td><td>■</td><td>■</td><td></td><td>■</td></tr>
<tr><td>CO5</td><td>■</td><td></td><td>■</td><td></td><td>■</td><td>■</td></tr>
<tr><td>CO6</td><td>■</td><td>■</td><td></td><td>■</td><td></td><td>■</td></tr>
<tr><td>CO7</td><td>■</td><td>■</td><td></td><td>■</td><td>■</td><td>■</td></tr>
<tr><td>CO8</td><td>■</td><td>■</td><td></td><td>■</td><td>■</td><td>■</td></tr>
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<tr><td>Pre-requisite</td><td>Basic Science, Biotechnology</td></tr>
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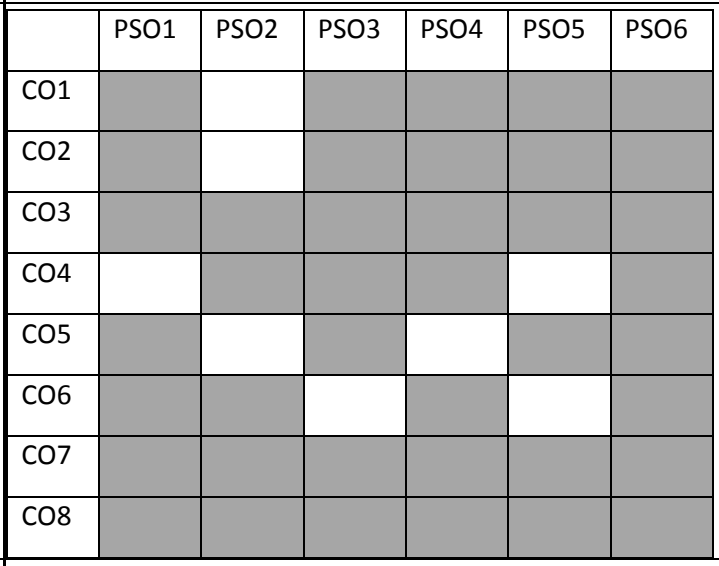
Course Content	1.Spectrophotometeric analysis of nucleic acids 2. Protein estimation at λ280 3. Ammonium sulphate fractionation and dialysis 4. To study time course reaction and determine optimum pH/Temperature for an enzyme 5. Preparation of double reciprocal curve of an enzyme 6. Qualitative analysis of important phytochemicals 7. Isolation of protoplast 8. Demonstration: Ion Exchange Chromatography, Affinity Chromatography, Reverse Phase Chromatography.
Reference Books	1.The Tools of Biochemistry, Terrance G. Cooper (2011) Wiley Interscience. 2. Purifying Proteins for Proteomics, Richard J. Simpson (2004) CSHL Press. 3. Molecular Cloning (A Laboratory Manual), Sambrook and Russell (3rd Edition, 2001) CSHL Press.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	**PGD: MBL-105**
Course Title	**Lab work–II**
Credit	2
Teaching per Week	30
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The purpose of the course is to provide hands on experience on molecular biology practicals.
Course Objective	To acquaint students with the practicals related to molecular biology including DNA, Plasmid isolation, RE digestion, Electrophoresis etc.

Course Outcomes	CO1: To analyse growth curve of bacteria and gain hands on training on bacterial cells culture (isolation). CO2: To practically gain experience on basics of DNA and plasmid isolation. CO3: To perform agarose gel electrophoresis. CO4: to gain hands on experience on restriction enzyme digestion of DNA. CO5: to perform biochemical estimation of DNA and RNA.
Mapping between COs with PSOs	
Pre-requisite	Basic Science, Biotechnology
Course Content	1.Obtaining isolated colonies of *E. coli* by streak plate and spread plate method and study the growth curve of *E. coli* 2. Isolation of chromosomal DNA of *E. coli* and Gel Electrophoresis 3. Isolation of plasmid DNA and Gel Electrophoresis 4. Isolation of DNA from plant source 5. Digestion of DNA with restriction enzymes 6. Determination of molecular weight of unknown DNA sample by Agarose Gel Electrophoresis 7. Estimation of DNA by DPA method 8. Estimation of RNA by Orcinol method
Reference Books	1.Molecular Cloning (A Laboratory Manual), Sambrook and Russell (3rdEdition, 2001) CSHL Press. 2. Gene Cloning and DNA Analysis, T. A. Brown, (6 th Edition, 2010) Blackwell Publishing. 3. Prescott, Harley and Klein's Microbiology, Wiley, Sherwood, Woolverton (7^{th} Edition, 2008) McGraw Hill.

Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	**PGD: MBL-106**
Course Title	**Lab work–III**
Credit	2
Teaching per Week	30
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	This course is designed to give students both a theoretical background and a working knowledge of the instrumentation and techniques employed in a biotechnology laboratory. Emphasis will be placed on the introduction of foreign DNA into bacterial cells, as well as the analysis of nucleic acids (DNA and RNA) and proteins.
Course Objective	• The primary objective of this course is to examine the basic concepts of biotechnology and the methods used in the manipulation of nucleic acids (DNA and RNA). • The course is supplemented with laboratory exercise and demonstrations that illustrate the basic concepts and techniques of biotechnology.
Course Outcomes	CO1: Students will learn how to introduce foreign DNA into bacterial cells for the purpose of molecular cloning. Students will be evaluated by observation in the laboratory and analysis of experimental results. CO2: Students will be able to create recombinant DNA molecules composed of DNA from multiple sources. Students will be evaluated by observation in the laboratory and analysis of experimental results. CO3-CO8: Students will be able to properly handle genetically engineered organisms and employ the safeguards necessary when working with such organisms.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

	CO4 | CO5 | CO6 | CO7 | CO8
Pre-requisite	Basic science, Biotechnology
Course Content	1.Identification of human blood groups and Rh factor 2. Isolation of splenocytes from spleen tissue 3. Isolation of peripheral blood mononuclear cells (PBMC) 4. Assessment of cell viability by Trypan Blue 5. To perform Immunodiffusion assay: Single diffusion 6. To perform Immunodiffusion assay: Double Diffusion 7. To perform Immunoelectrophoresis 8. Demonstration of Immunoblotting
Reference Books	1. Practical Immunology, Hudson & Hay (4th Edition 2002) Blackwell Publishing. 2. Handbook of Immunoprecipitation, Nils H. Axelsen (1984) Blackwell Publishing.
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Semester 2

Course Code	**PGD: MB-201**
Course Title	**Module VIII: Biophysical Techniques–II**
Credit	4
Teaching per Week	60
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019

<table>
<tr><td>Purpose of Course</td><td>This module is designed to learn about separation of macromolecules by electrophoresis, centrifugation and different blotting techniques. Students are able to learn about fundamentals of fermentation technologies and also about computational biology.</td></tr>
<tr><td>Course Objective</td><td>-Main objective of this module is how to detect and analyse macromolecule.

-Provides current knowledge in fermentation technology with a focus on industrial practice.</td></tr>
<tr><td>Course Outcomes</td><td>CO1: Students will able to learn about electrophoresis method used in molecular and genetic analysis with basic principles and techniques.

CO2: Students will have basic knowledge about blotting and centrifugation process.

CO3: Students will get idea about design and control of fermenters to strain improvement and separation of molecules after fermentation process.

CO4: After learning this course, Students will able to learn about knowledge and awareness of the basic principles and concepts of computational biology in which they will learn to use different soft wares by which information can be extracted and stored from large database in computer modeling.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
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<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>Pre-requisite</td><td>Basic Science, Biotechnology</td></tr>
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Course Content	**Unit 1: Separation of Macromolecules by Electrophoresis:** 1.1. Native and SDS PAGE 1.2. Detection of protein bands in gels- Coomassie blue staining, silver staining, fluorescence staining, affinity staining 1.3. Isoelectric Focusing of Proteins, Two Dimensional Gel Electrophoresis 1.4. Gradient Gel Electrophoresis, Differential Gel Electrophoresis (DIGE) 1.5. Theory of Agarose Gel Electrophoresis and Pulsed Field Gel Electrophoresis **Unit 2: Blotting Techniques & Principle of Centrifugation:** 2.1. Southern Blot and factors affecting DNA transfer 2.2. Northern Blot, Western Blot, Dot Blot 2.3. Centrifugation: Principle, instrumentation and applications 2.4. Radioactive materials: Types, precautions for handling, methods of measurements and applications. 2.5. Autoradiography **Unit 3: Fermentation Technology & Protein Interaction:** 3.1. Fundamentals of fermentation technology: Batch, Fed Batch and Continuous cultures 3.2. Stirred Tank Reactors and Airlift Fermenters, Downstream Processing 3.3. Additional methods to identify associated proteins: Analysis of protein–protein interactions, Yeast two-hybrid systems 3.4. Analyzing protein interactions by Fluorescence Resonance Energy Transfer (FRET), Protein Fragment Complementation (PCA), Mass Spectroscopy (MS) 3.5. Library based methods (surface display) Protein microarrays **Unit 4: Bioinformatics and Computational Biology:** 4.1. Biological databases and Archives: Sequence Databases, Structure Databases, Microbial Databases and Eukaryotic Databases 4.2. Genomics: ORF, promoters, ESTs, Genome Analysis, Gene Prediction, Statistical Models, Mathematical Models, Sequence Alignment 4.3. Comparative Genomics 4.4. Proteomics: Protein Structure Prediction, Homology Models, Threading/Fold Recognition 4.5. *Ab-Initio* Models, Protein-Protein Interactions, Proteins as Drug Targets, Phylogenetic Analysis
Reference Books	1. Biochemistry and Molecular Biology, Keith Wilson & John Walker (6th Edition, 2008) Cambridge University Press. 2. Biochemistry Laboratory: Modern Theory and Techniques, Rodney Boyer (International Edition, 2009) Benjamin Cummings. 3. Physical Biochemistry, Freifelder (2nd Edition, 1982) W. H. Freeman and Co. 4. Principles of Biochemistry, Lehninger, Nelson and Cox (5th Edition, 2008) W. H. Freeman and Co. 5. Modern Industrial Microbiology and Biotechnology, Nduka Okafor (2007) Science Publishers.

	6. Introduction to Bioinformatics, Attwood, Parry- Smith, Phukan (2007) Pearson Education. 7. Bioinformatics, David Mount (2001) CSHL Press. 8. Plant Tissue Culture Theory and Practice, Bhojwani and Razdan (2008) Elsevier. 9. Culture of Animal Cells, Freshney (4th Edition, 2000) Wiley-Liss Inc.
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	**PGD: MB-202**
Course Title	**Module IX: Recombinant DNA Technology–II**
Credit	4
Teaching per Week	60
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The course aims to convey the knowledge of extensive fundamentals of r-DNA technology that covers the usage of PCR in Recombinant DNA technology, Heterologous protein expression in preliminary organisms such as *E.coli* and gene transfer methods for different organisms. Additionally, it also includes genome structure and transcriptome related aspect.
Course Objective	To make students understand how the Recombinant DNA molecule can be further utilized once it has been generated and which aspects of this application are required to have special attention.
Course Outcomes	CO1: The module starts with unit that covers the basics on how a heterologous protein can be expressed in organism like *E.coli.* It includes details of expression vectors, optimization of protein expression, fusion proteins as well as RNAi vectors. Additionally, DNA transformations in yeast are also covered. CO2: The next course unit is designed to impart the knowledge of different gene transfer methods in plants and animals. Along with that, it also covers fundamentals of use of reporter genes and characterization of cloned DNA. CO3: The course also includes the knowledge related to PCR and its applications in recombinant DNA technology . CO4 : Last portion module covers the basics related to genome structure,

<table>
<tr><td></td><td>transcriptome and safety and ethical issues related to Recombinant DNA technology.</td></tr>
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<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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</td></tr>
<tr><td>Pre-requisite</td><td>Basic science, Biotechnology</td></tr>
<tr><td>Course Content</td><td>Unit 1: Heterologous protein expression of cloned DNA in E. coli:
1.1. Expression vectors (lac promoter, trp promoter, Lambda cI promoter, arabinose promoter based)
1.2. Optimization of protein expression (using upstream and downstream signals)
1.3. Fusion proteins, cell-free translation systems.
1.4. RNAi vectors.
1.5. DNA transformation in yeast: Methods of gene transfer to yeast, YIp, YEp, YCp, YRp, shuttle
vectors)
Unit 2: Gene Transfer:
2.1. Methods of Gene transfer to plants
2.2. Gene transfer to animal cells
2.3. Optimization of protein synthesis
2.4. Use of reporter genes.
2.5. Characterization of cloned DNA: Restriction Mapping, DNA Sequencing (Dideoxy Chain
Termination, Chemical Degradation, Pyrosequencing, Shotgun Sequencing and Contig
Assembly)
Unit 3: PCR & Recombinant DNA Technology
3.1. Polymerase Chain Reaction, RAPD
3.2. Primer Designing
3.3. DNA Markers
3.4. Modification of cloned DNA
3.5. Applications of Recombinant DNA Technology: Transgenic animals, Transgenic plants, Gene
therapy, Pharmaceutical products
Unit 4: Genome structure & Transcriptome:
4.1. Organization of genomes and nuclear DNA
4.2. Mapping and Sequencing genomes.
4.3. Analysis of the transcriptome: RNA expression level profiling with microarrays, MPSS, SAGE,
ESTs, loss of function
4.4. Knock out, knock down, antisense RNA and RNA
4.5. Safety of Recombinant DNA Technology and Ethical issues</td></tr>
</table>

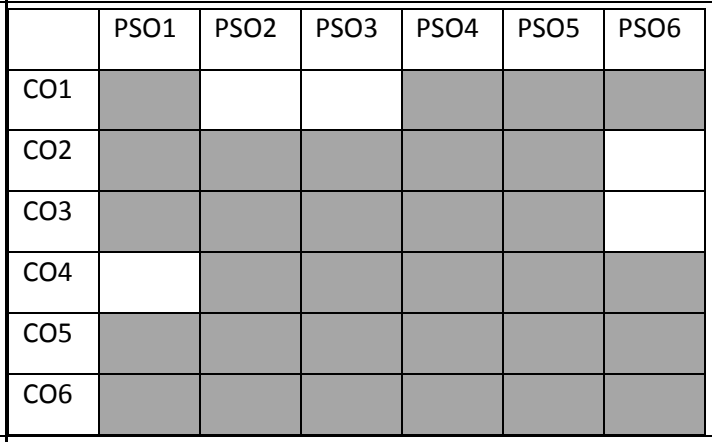
Reference Books	1. Principles of Gene Manipulation and Genomics, S.B. Primrose & R.M. Twyman (7th Edition, 2006) Blackwell Publishing. 2. Molecular Cloning (A Laboratory Manual), Sambrook and Russell (3rd Edition, 2001) CSHL Press.
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	**PGD: MB-203**
Course Title	**Module X: Immunology–II**
Credit	4
Teaching per Week	60
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The purpose of the course is to provide insights about basics of functioning of immune system including cell mediated response, cytokines, complement system, vaccines and immune response regulation
Course Objective	To acquaint students with the concepts of response of T cells to antigens, classes of cytokines, complementation activation, vaccines, autoimmunity and transplantation immunology.
Course Outcomes	CO1: To acquaint students with structure of T cell receptors, organisation and rearrangement of TCR genes, generation of cytotoxic cells and response of NK cells. CO2: To elaborate on families of cytokines receptors, signalling, and related diseases. To acquire knowledge about complement pathways and biological consequences of complement activation. CO3: Students will acquire concepts of active and passive immunization, vaccine development, grafting and autoimmune diseases. CO4: Students will gain fundamentals of immune responses to various pathogens, cancer cells and Jerne's theory.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						

	CO2 ■ ■ ■ ■ ■ ■ CO3 ■ ■ ■ ■ ■ ■ CO4 ■ ■ ■ ■ ■ ■
Pre-requisite	Basic Science, Biotechnology
Course Content	**Unit 1: The Response of T cells to antigens:** 1.1. T cell receptor, T cell accessory membrane molecules, thymic selection of T cell repertoire 1.2. Organization and rearrangement of TCR genes 1.3. Cell mediated immune response: generation of cytotoxic cells 1.4. CTL mediated cytotoxicity 1.5. Response of NK cells **Unit 2: Cytokines & Complement System:** 2.1. Cytokines: properties, function of IL -1 to IL-5, IL-10, Il-12, IFNs, TNFs 2.2. Cytokine receptors and signal 2.3. Cytokine related diseases 2.4. Classical & Alternate pathway and Lectin pathway & Regulation 2.5. Biological consequences of complement activation **Unit 3: Vaccines, Autoimmunity & Transplantation Immunology:** 3.1. Active and passive immunization, attenuated & inactivated vaccines 3.2. New approaches to vaccine development 3.3. Organ specific and systemic autoimmune diseases 3.4. Types of grafts, tissue typing 3.5. Immunological basis of graft rejection, immunosuppressive therapy **Unit 4: Immune Response & Regulation:** 4.1. Immune response to Bacterial, Viral, Protozoan and Helminth infections 4.2. Genomics and the challenge of infectious diseases 4.3. Oncogenes, Tumor antigens and Induction of immune response 4.4. Immunotherapy for tumors 4.5. Antigen & antibody mediated regulation, Jerne's theory
Reference Books	1.Immunology, Janis Kuby (7^{th} Edition, 2006) Freeman and Company. 2. Immunobiology, Janeway, Travers, Walport, Sclomchik (6th Edition, 2005) Garland publishing.
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc.

	70% External based on semester end University examination

Course Code	**PGD: MB-204**
Course Title	Labwork-IV
Credit	2
Teaching per Week	30
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The purpose of the course is to provide hands on experience on bioprocess technology and bioinformatics related practicals.
Course Objective	To acquaint students with the practicals related to bioprocess technology and bioinformatics.
Course Outcomes	CO1: To perform SDS-PAGE of proteins and determination of molecular weight. CO2: To perform fermentation of microorganisms for production of amylase/citric acid CO3: To gain experience on protein/nucleic acid databases, sequence alignment, and phylogenetic analysis. CO4: to gain hands on experience on gene finding tools and proteomics CO5-CO6: to visualise protein structure using Rasmol and JMOL.
Mapping between COs with PSOs	
Pre-requisite	Basic Science, Biotechnology

Course Content	1. SDS PAGE of proteins and determination of molecular weight of protein samples 2. Enzyme ad Secondary metabolite production by microorganisms (Amylase, Citric acid) 3. Databases: Protein data bank, Nucleic acid database, Genbank, Sequence alignment using BLASTn, BLASTp, CLUSTALW. Phylogenetic analysis and development of dendrogram and cladogram 4. Gene finding tools- GenScan, GLIMMER 5. Introduction to proteomics Protparam, GOR, nnPredict, SWISSMODEL 6. Protein Visualization Softwares - Rasmol, JMOL
Reference Books	1. The tools of Biochemistry, Terrance G. Cooper, Wiley Interscience. 2. Purifying Proteins for Proteomics, Richard J. Simpson, CSHL Press. 3. Introduction to Bioinformatics, Attwood, Parry- Smith, Phukan (2007) Pearson Education. 4. Bioinformatics, David Mount (2001) CSHL Press.
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course Code	**PGD: MB-205**
Course Title	Labwork-V
Credit	2
Teaching per Week	30
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The purpose of the course is to provide hands on experience on recombinant DNA technology.
Course Objective	To acquaint students with the practicals related to bioprocess technology and bioinformatics.

<table>
<tr><td>Course Outcomes</td><td>CO1 : To prepare competent cells for transformation and transformation of E coli cells

CO2 : To amplify a gene using PCR

CO3 : To perform primer designing by bioinformatics tools

CO4-CO6 : to gain hands on experience on soil meta genome and bacterial RNA isolation</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td><td>PSO6</td></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO5</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO6</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Pre-requisite</td><td>Basic Science, Biotechnology</td></tr>
<tr><td>Course Content</td><td>1. Preparation of competent cells of E. coli and transformation of competent E. coli cells with
plasmid DNA.
2. To amplify a gene using PCR
3. Primer Designing by Bioinformatics tools.
4. Soil DNA extraction by Spin Column method
5. Total bacterial RNA isolation and separation by Electrophoresis
6. Demonstration of RAPD and DNA sequencing by different methods.</td></tr>
<tr><td>Reference Books</td><td>1. Molecular Cloning (A Laboratory Manual), Sambrook and Russell (3rd Edition, 2001) CSHL Press.
2. Gene Cloning and DNA Analysis, T. A. Brown, (6th Edition, 2010) Blackwell Publishing.</td></tr>
<tr><td>Teaching Methodology</td><td>Class work, Discussion, Self-Study, Seminars and/or Assignment</td></tr>
<tr><td>Evaluation Method</td><td>30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc.
70% External based on semester end University examination</td></tr>
</table>

<table>
<tr><td>Course Code</td><td>PGD: MB-206</td></tr>
<tr><td>Course Title</td><td>Labwork-VI</td></tr>
<tr><td>Credit</td><td>2</td></tr>
<tr><td>Teaching per Week</td><td>30</td></tr>
<tr><td>Minimum weeks per Semester</td><td>15 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective From</td><td>June 2019</td></tr>
<tr><td>Purpose of Course</td><td>The purpose of the course is to provide hands on experience on practicals related to immunology.</td></tr>
<tr><td>Course Objective</td><td>To acquaint students with the basics of immunology practicals.</td></tr>
<tr><td>Course Outcomes</td><td>CO1 : To perform isolation and titration of bacteriophage
CO2 : To perform WIDAL slide test
CO3 : To perform Hepatitis B surface antigen by direct ELISA
CO4-CO6 : To gain hands on experience on hemaglutination for blood donor feasibility and complement fixation test.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td><td>PSO6</td></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO5</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO6</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Pre-requisite</td><td>Basic Science, Biotechnology</td></tr>
</table>

Course Content	1. Isolation and titration of Bacteriophage 2. WIDAL Slide test 3. Detection of HIV by ELISA test 4. Detection of Hepatitis B surface antigen by direct ELISA 5. Hemagglutination test to check blood donor feasibility 6. Complement fixation test
Reference Books	1. Practical Immunology, Hudson & Hay (4th Edition, 2002) Blackwell Publishing. 2. Handbook of Immunoprecipitation, Nils H. Axelsen (1984) Blackwell Publishing.
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Academic Council Dt.05-02-2022
Item No. 25 Encl. 16

Veer Narmad South Gujarat University, Surat

M. Sc. Integrated Biotechnology Semester-X

List of Research Papers: 2021-2022

BT: R-4002 Review of Published Research Paper/Article

Sr. No.	Title
1.	Biodegradation and metabolic pathway of sulfamethoxazole by *Sphingobacterium mizutaii*
2.	Effect of salinomycin on EMT and stemness pathways in 5-FU-resistant breast cancer
3.	Enhanced polyhydroxybutyrate (PHB) production by newly isolated rare actinomycetes *Rhodococcus* sp. strain BSRT1-1 using response surface methodology
4.	Electrospun chitosan-graft-poly (ε-caprolactone)/poly (ε-caprolactone) nanofibrous scaffolds for retinal tissue engineering
5.	Cloning and Functional Characterization of a Pericarp Abundant Expression Promoter (AhGLP17-1P) From Peanut (*Arachis hypogaea* L.)
6.	Bacterial Community Dynamics and Biocement Formation during Stimulation and Augmentation: Implications for Soil Consolidation
7.	Golden bananas in the field: elevated fruit pro-vitamin A from the expression of a single banana transgene
8.	Cellular host factors for SARS-CoV-2 infection
9.	*Plasmodium falciparum* is evolving to escape malaria rapid diagnostic tests in Ethiopia
10.	A catalogue of 1,167 genomes from the human gut Archaeome

(Gaurav Shah)

MA_Eng_Co

Academic Council Dt.05-02-2022
Item No. 26 Encl. 17

Master of Arts (English)

Name of Program	**Master of Arts (English)**
Abbreviation	**MA**
Duration	**2 Years**
Eligibility Criteria	B.A./ Bachelor Degree in English
Objective of Program	The core objective of the programme is to prepare students for taking careers in teaching English language and literature, Media-communication, copy editing, proof reading, script writing, to engage them in translation project, and to provide an exposure in research in the areas of literatures and language.
Program Outcome	**PO1:** To provide the students with a higher degree of exposure, appropriate at the postgraduate level, to literature, criticism and theory and language studies. **PO2:** To develop an aptitude for research in students for their possible further study for a research degree like M.Phil/Ph.D. **PO3:** To inspire and mentor students to develop varied skills through extracurricular activities like sports, cultural activities and social service for the eventual nation building. **PO4:** To make the students acquire employable skills in the areas of English, translation studies and content writing.
Program Specific Outcomes	**PSO1:** To train the students in the critical reading and analysis of the works in English **PSO2:** To develop and refine the students' communicative skills in English **PSO3:** To train the students for academic jobs related to teaching and researchat various levels, translator's jobsand language oriented jobs in Mass Media.
Mapping between POs and PSOs	PSO1 PSO2 PSO3 PO1 ■ ■ PO2 ■ ■ PO3 ■ PO4 ■ ■ ■
Medium of Instruction	English
Program Structure	Semester 1

Course Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
1801130201010001	The Elizabethan and Jacobean Periods in English Literature(1560 – 1640)	4	0	4	2 hrs	50	20	70
1801130201020001	The Restoration Period in English Literature (1640–1700)	4	0	4	2 hrs	50	20	70
1801130201030001	The Augustan Period in English Literature (1700–1798)	4	0	4	2 hrs	50	20	70
1801130201040001	Women's Writing in English	4	0	4	2 hrs	50	20	70
	OR							

1901130201040003	English Language Teaching							
1801130201050001	Multidisciplinary Course	4	0	4	2 hrs	50	20	70
1801130201060001	Term Paper	2	NA	2	NA	70	-	70
	Total	22	0	22				

Program Structure		Semester 2						
Course Code	**Title**	**Teaching per week**		**Course Credits**	**University Examination**		**Internal Marks**	**Total Marks**
		Theory	**Practical**		**Duration**	**Marks**		
1901130202010001	The Romantic Period (1798 –1840)	4	0	4	2 hrs	50	20	70
1901130202020001	The Victorian Period (1840-1900)	4	0	4	2 hrs	50	20	70
1901130202030001	The Modernist Period (1900-1950)	4	0	4	2 hrs	50	20	70
1901130202040001	Indian Literature in English Translation	4	0	4	2 hrs	50	20	70
	OR							
1901130202040002	New Literatures in English							
1901130202050001	Multidisciplinary Course	4	0	4	2 hrs	50	20	70
1901130202060001	Term Paper	2	NA	2	NA	70	-	70
	Total	22	0	22				

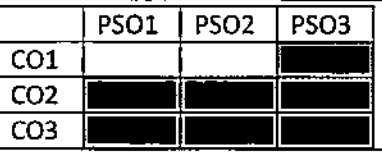
Master of Arts (English):1st Semester

Course: 1801130201010001: The Elizabethan and Jacobean Periods in English Literature(1560 – 1640)

Course Code	**1801130201010001**
Course Title	**The Elizabethan and Jacobean Periods in English Literature(1560 – 1640)**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	To familiarise students with European Renaissance and Elizabethan and Jacobean English literature and history
Course Objective	To introduce students to the reading of representative Elizabethan and Jacobeanwriters and their works in socio-political conworks.
Course Outcomes	**CO1:** To acquaint students with the social and political background of Elizabethan and Jacobean periods. **CO2:** To familiarize students with the major literary works of the period. **CO3:** To train students in thereading of the literary works in relation to the socio-political context.
Mapping between COs with PSOs	PSO1 PSO2 PSO3 CO1 CO2 CO3
Pre-requisite	Acquaintance with history of English literature
Course Content	Unit 1: Salient features of European Renaissance, Impact of Renaissance on England, Humanism, Reformation and its impact on English Literature,

	Elizabethan Drama, the significance of Shakespeare in English Literature, Prose and Poetry during Elizabethan times. Unit 2: Shakespeare, Coriolanus Unit 3: Robert Burton, The Anatomy of Melancholy Unit 4:George Herbert, selected poems (Please see Appendix 'A' for the list of poems.). (Appendix A George Herbert, selected poems: I. "The Agonie" II. "Redemption" III. "Affliction") IV. "The Temper" V. "Vertue" VI. "Man" VII. "Mortification") VIII. "The Collar") IX. "The Pulley") X. ("Death")
Reference Books	-
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1801130201020001: The Restoration Period in English Literature1640 –1700

Course Code	**1801130201020001**
Course Title	**The Restoration Period in English Literature1640 –1700**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	To familiarise students with works of Restoration Period in English literary history
Course Objective	To familiarise students with Restoration English writers and their works In socio-political contexts.
Course Outcomes	**CO1:** To familiarize students with the socio-political background of the Restoration Period in English Literature. **CO2:** To acquaint students with the major literary trends of this period. **CO3:** To help students relate literary works with the socio-political contexts of the Restoration period.
Mapping between COs with PSOs	
Pre-requisite	Acquaintance with history of English literature
Course Content	Unit 1: The Civil War and the Establishment of Common wealth, the Rise of Puritanism, Impact of Puritanism on Literature, Characteristics of RestorationLiterature, The Comedy of Manners, The Significance of Milton in

	English Literary History. Unit 2: John Milton, Selected Poems(Please see appendix B) Appendix B John Milton, Selected Poems (I. "On the Morning of Christ's Nativity" (II. "L' Allegro" (III. "Il Penseroso" (IV. "Lycidas" (V. "Hail , Holy light" Unit 3: Thomas Browne, Religio Medici Unit 4:John Dryden, All for Love
Reference Books	-
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1801130201030001: TheAugustan Period in English Literature (1700–1798)

Course Code	**1801130201030001**
Course Title	**TheAugustan Period in English Literature (1700–1798)**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	To familiarise students with works of the Augustan Period in English literary history
Course Objective	To familiarise students with Augustan writers and their works in socio-political contexts in English literary history.
Course Outcomes	**CO1:** To make students aware of the political and social background of the Augustan period in English Literature. **CO2:** To acquaint students with the major literary trends of this period. **CO3:** To help students read literary works in the context of socio-political history.
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 | | | [redacted] CO2 | [redacted] | [redacted] | [redacted] CO3 | [redacted] | [redacted] | [redacted]
Pre-requisite	Acquaintance with history of English literature
Course Content	**Unit 1:** Enlightenment and its relevance to the study of literature, Neo-classicism in Literature, The Rise of the Novel in English, Periodicals and the rise of English Prose, Realism and its significance, Satire as the dominant form in Augustan Poetry, The significance of Pope in the history of English Literature. **Unit 2:** Alexander Pope, *An Essay on Man* **Unit 3:** Oliver Goldsmith, *The Good Natured Man* **Unit 4:** Henry Fielding, *Joseph Andrews*
Reference Books	-
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment

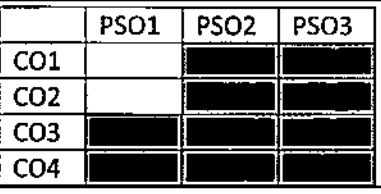
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course:1801130201040001: Women's Writing in English

Course Code	**1801130201040001**
Course Title	**Women's Writing in English**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	To make students aware of the role of gender in literature and society and acquire the ways of reading and criticising feminist issues in literary and cultural contexts.
Course Objective	To familiarize the students with the history, concepts and literary tradition in the context of feminism.
Course Outcomes	**CO1:** To acquaint students with the basic concepts of feminism. **CO2:** To make students aware of the tradition of women's writing. **CO3:** To help students read women's writing in the context of modern literature.
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 | | | [redacted] CO2 | [redacted] | [redacted] | [redacted] CO3 | [redacted] | [redacted] | [redacted]
Pre-requisite	Awareness of women's writing in English/ Indian languages
Course Content	**Unit 1:** Bharti Mukherjee, *Wife* **Unit2:** Shashi Deshpande, *Small Remedies* **Unit3:**Simone de Beauvoir, *The Second Sex (Volume II 'Lived Experiences-Chapter I)* **Unit4:**Margaret At wood, *The Edible Women*
Reference Books	-
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1901130201040003: English Language Teaching

Course Code	**1901130201040003**
Course Title	**English Language Teaching**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	To introduce students to LSRW skills of the English Language, various nuances of a particular language skill and effective pedagogical methods for teaching skills of language.
Course Objective	To familiarize students withthe background of ELT and equip them with effective skills and techniques for teaching various skills of language

Course Outcomes	**CO1:** To acquaint the learners with the finer aspects of listening as skill and enable them with pedagogy framework for effective teaching listening skill. **CO2:** To acquaint the learners with the finer aspects of speaking as skill and enable them with pedagogy framework for effective speaking listening skill. **CO3:** To acquaint the learners with the finer aspects of Reading as skill and enable them with pedagogy framework for effective teaching Reading skill. **CO4:** To acquaint the learners with the finer aspects of writing as skill and enable them with pedagogy framework for effective teaching writing skill.
Mapping between COs with PSOs	
Pre-requisite	Adequate exposure to the formal structure and use of English
Course Content	**Unit 1:** Listening Skills • What is listening? • Listening for various purposes • Academic listening and taking notes • Barriers to listening • Teaching methods **Unit 2:** Speaking Skills • What is speaking? • Speaking Skills • Speaking in an academic context • Difference between speech and writing • Methods and techniques **Unit 3:** Reading Skills • What is reading? • Reading strategies: cognitive & metacognitive • Types of reading: skimming, scanning, intensive, reading aloud, silent reading • Classroom approaches to reading **Unit 4:** Writing Skills • What is writing? • Smallest unit in writing: the paragraph • Types of writing • The functions of writing • The teaching of writing
Reference Books	Anne Anderson and Tony Lynch (1988). Listening. Oxford University Press Brown, G. & G. Yule. 1983. Teaching the Spoken Language. Cambridge: Cambridge University Press.) Carter, R. & D. Nunan. 2001. The Cambridge Guide to Teaching English to Speakers of Other Languages. Cambridge: Cambridge University Press Gimson, A.C.(1989). An Introduction to the Pronunciation of English, 4th revised edition, London: Edward Arnold, Chapter 4. Grellet, F. 1981. Developing Reading Skills. Cambridge: Cambridge University Press. Richards, J. 1985 The Context of Language Teaching Cambridge: Cambridge University Press. Ur, Penny. 1984. Teaching Listening Comprehension. Cambridge: Cambridge University Press.) Byrne, Don. 1979. Teaching Writing Skills. London: Longman.) Nunan, David(ed.), 1992. Collaborative Language Learning and Teaching. Cambridge: Cambridge University Press.
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment

Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1801130201050001: Multi-disciplinary Course (Psychology and Drama)

Course Code	**1801130201050001**
Course Title	**Multi-disciplinary Course (Psychology and Drama)**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	To make students relate psychological principles and drama in multidisciplinary context in world literature, and make them understand and critically comment on the mutually beneficial relationship of psychology and literature.
Course Objective	To make students comprehend and learn the method of reading the multidisciplinary study of psychology and dramain world context to a possible degree.
Course Outcomes	**CO1:** To help students relate Literature to other disciplines. **CO2:**To train students read literary works in the light of psychological theories. **CO3:**To familiarize students with the discourse of psychology and the relevance of psychological concepts to the study of literature.
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 | | | [redacted] CO2 | [redacted] | [redacted] | [redacted] CO3 | [redacted] | [redacted] | [redacted]
Pre-requisite	Exposure to psychological concepts and literature
Course Content	**Unit1:** I. Sigmund Freud, *"Creative Writers and Day Dreaming"* (1908) (from Sigmund Freud, Collected Works); II. Herbert Read, *"The Nature of Criticism"*, (from Herbert Read, Collected Essays in literary criticism (1956)) **Unit2:** Shakespeare, *The Tempest*; **Unit3:** Arthur Miller, *The Crucible*; **Unit4:** Vijay Tendulkar, *Kamala*
Reference Books	-
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Master of Arts (English): 2nd Semester

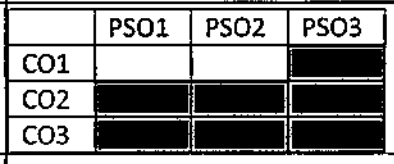
Course: 1901130202010001: The Romantic Period (1798 –1840)

Course Code	**1901130202010001**
Course Title	**The Romantic Period (1798 –1840)**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	To familiarise students with Romanticperiod in English literary history

Course Objective	To introduce students to the reading of representative Romantic writers and their works in philosophical contexts.
Course Outcomes	**CO1:** To acquaint students with the socio-political background of Romanticism in English literature. **CO2:** To introduce the major works of the Romantic period written in English. **CO3:** To help students understand the philosophical ideas generated during this period and read literary works in relation to them.
Mapping between COs with PSOs	PSO1 PSO2 PSO3 CO1 CO2 CO3
Pre-requisite	Acquaintance with history of English literature
Course Content	**Unit 1:** The French Revolution and its impact on English Literature, The Romantic concept of Imagination and its importance, The significance of Words worth and Keats in the history of English poetry, The Historical Novel or Romance, The emergence of auto biography as a literary form. **Unit 2:** Charlotte Brontë, *Jane Eyre*, **Unit 3:** Wordsworth, selected poems [F. L. Lukas et al (ed.)Eight Poets OUP, 1962](Please see Appendix 'C' for the list of the poems) (Appendix C Wordsworth, selected poems i. "Lucy Gray (Oft I had heard of Lucy Gray)" ii. "Lucy I (Strange fits of passion have I known)" iii. "Lucy II (I travelled among unknown men)" iv. "Lucy III (She dwelt among the untrodden ways") v. "Lucy IV (Three years she grew in sun and shower)" vi. "Lucy V (A slumber did my spirit seal)" vii. "The French Revolution" viii. "To the Cuckoo" ix. "Daffodils" x. "It is a beauteous evening" **Unit 4:** Charles Lamb, Selected Essays from Essays of Elia (Please see appendix D) (Appendix D Charles Lamb, Selected Essays from Essays of Elia I. "The South-Sea House" II. "Christ's Hospital: Five and Thirty Years Ago") III. "Dream Children: A Reverie" IV. "On Some of the Old Actors" V. "Poor Relations" VI. "Newspapers Thirty Five Years Ago"
Reference Books	
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1901130202020001:The Victorian Period (1840-1900)

Course Code	**1901130202020001**
Course Title	**The Victorian Period (1840-1900)**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2019

Purpose of Course	To familiarise students with the Victorian period in English literary history
Course Objective	To introduce students to the reading of representative Victorian writers and their works in social contexts.
Course Outcomes	**CO1:** To acquaint students with the intellectual and socio-political background of the Victorian period. **CO2:**To introduce the major literary works of the Victorian period. **CO3:**To train students in relating literary works to their social contexts.
Mapping between COs with PSOs	
Pre-requisite	Acquaintance with history of English literature
Course Content	**Unit1:** Salient features of the literature written in the Victorian period, The crisis of faith during the period. Utilitarian philosophy, Positivism and the idea of progress, Imperialism and colonialism, The significance of Matthew Arnold and Thomas Hardy in English Literature, The Realistic Drama and the Well-made play, The Pre-Raphaelite Poets and the characteristics of their poetry. **Unit2:** Mathew Arnold ,selected poems (Please see Appendix 'E' for the list of the poems) Appendix E Mathew Arnold, selected poems I. "The Forsaken Merman" II. "Memorial Verses" III. "The Scholar Gipsy" IV. "Thyrsis" V. "Rugby Chapel" VI. "Dover Beach" VII. "The Death of Sohrab" VIII. "Immortality" (Fifteen Poets, Oxford UP, 1941) **Unit3:** Thomas Hardy ,*The Return of the Native* **Unit4:** John Stuart Mill ,*On Liberty*.
Reference Books	-
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

	PSO1	PSO2	PSO3
CO1			
CO2			
CO3			

Course: 1901130202030001:The Modernist Period (1900-1950)

Course Code	**1901130202030001**
Course Title	**The Modernist Period (1900-1950)**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	To familiarise students with the Modernist period in English literary history
Course Objective	To introduce students to the reading of representative Modernist writers and their works in socio-political and intellectual contexts.
Course Outcomes	**CO1:** To acquaint students with the political and social events that shaped modernist literature. **CO2:** To contextualize the modernist works in literature in relation to the intellectual currents of the period. **CO3:** To encourage students to read the works closely inrelation to the larger trends of the Modernist period.

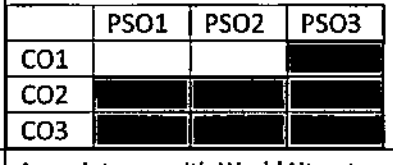
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td></tr><tr><td>CO3</td><td></td><td></td><td></td></tr></table>
Pre-requisite	Acquaintance with history of English literature
Course Content	**Unit1:** Literary movements during the modernist period: symbolism, imagism, expressionism, surrealism; the stream of consciousness novel; the World Wars and their impact on literature; the War Poets; the rise of totalitarian regimes and their impact on literature; the ideas of Freud and the Psychological novel; Irish Literary Renaissance; the significance of W. B. Yeats and James Joyce in Modernist Literature **Unit2:** W. B Yeats (Selected Poems): (Please see Appendix 'F' for the list of the poems): Appendix F: W. B Yeats (Selected Poems) I. "Easter 1916" II. "The Second Coming" III. "Leda and the Swan" IV. "A Prayer for my Daughter" V. "Among School Children" VI. "Sailing to Byzantium" VII. "Byzantium" VIII. "In Memory of Major Robert Gregory" **Unit3:** Virginia Wolf, *Mrs Dalloway*, **Unit4:** T S Eliot, *Murder in the Cathedral*.
Reference Books	-
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1901130202040001:Indian Literature in English Translation

Course Code	**1901130202040001**
Course Title	**Indian Literature in English Translation**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	To familiarize students with the selected works of Indian literature in English translation and acquaint them with Indian literary traditions.
Course Objective	To acquaint the students with Indian literary works in English translation and familiarize them with the related translational issues.
Course Outcomes	**CO1:** To familiarize students with Indian Literary Traditions. **CO2:** To enable students relate Indian worksproduced in Indian Languages to the larger socio-political contexts of modern literature. **CO3:** To help students understand the problems of literary translation.
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td></tr><tr><td>CO3</td><td></td><td></td><td></td></tr></table>
Pre-requisite	Acquaintance with Indian language (s) and Indian literary traditions

Course Content	**Unit1:** Premchand, *The Gift of a Cow. Trans. Gordon C. Roadermel* **Unit2:** Mohan Rakesh, *Halfway House. Trans. BinduBatra* **Unit3:** Rahul Sankrityayan *Volga to Ganga Trans.VictorKierman* **Unit4:** K M Munshi *The Lord and Master of Gujarat .Trans. Rita Kothari*
Reference Books	-
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1901130202040002:New Literatures in English

Course Code	**1901130202040002**
Course Title	**New Literatures in English**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	To familiarize students with the selected works of New literatures in English and acquaint them with African, Canadian and Australian literary traditions.
Course Objective	To acquaint students with African, Canadian and Australianliterary works in English in historical and comparative contexts.
Course Outcomes	**CO1:** To acquaint students with the various literary traditions of non-British English-speaking countries. **CO2:** To introduce the major literary works of countries like Canada, Nigeria, South Africa and Australia in relation to their historical contexts to students. **CO3:** To help students read the literary works of new literatures in a comparative context.
Mapping between COs with PSOs	
Pre-requisite	Acquaintance with World Literature in English
Course Content	**Unit1:** Chinua Achebe, No Longer at Ease **Unit2:** Wole Soyinka, The Trials of Brother Jero **Unit3:**MargarateLawrance,A Jest of God. **Unit4:** Poems by Australian Poets A. D. Hope and Judith Right From An Anthology of Common wealth Poetry edited by C.D. Narasimhaiah. (Please see Appendix 'G' for the list of the poems) Appendix G A. D. Hope (Selected Poems) I. "Australia" II. "Standardization" III. "The Death of the Bird" IV. "Moschus Moschiferus: A Song for St. Cecilia's Day" Judith Right (Selected Poems) I. "Woman to Man" II. "Typists in the Phoenix Building" III. "The Harp and the King" IV. "Clock and Heart" V. "Nigger's Leap, New England"
Reference Books	-
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment

Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1901130202050001:Multidisciplinary Course (Novel and Psychology)

Course Code	**1901130202050001**
Course Title	**Multidisciplinary Course (Novel and Psychology)**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	To make students relate psychological principles and novels in multidisciplinary context of world literature, and make them understand and critically comment on the mutually beneficial relationship of psychology and literature.
Course Objective	To make students comprehend and learn the method of reading the multidisciplinary study of psychology and novel in world context to a possible degree.
Course Outcomes	**CO1:** To help students relate Literature to other disciplines. **CO2:** To train students read literary works in the light of psychological theories. **CO3:** To familiarize students with the discourse of psychology and the relevance of psychological concepts to the study of literature.
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 | | | [redacted] CO2 | [redacted] | [redacted] | [redacted] CO3 | [redacted] | [redacted] | [redacted]
Pre-requisite	Exposure to psychological concepts and literature
Course Content	**Unit1:** Sigmund Freud,*Civilization and its Discontents* **Unit2:** Ernest Jones,*Hamlet and Oedipus* **Unit3:** R K Narayan, *The Dark Room* **Unit4:** Toni Morrison , *The Song of Solomon*
Reference Books	-
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

O/C

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યુનિવર્સિટી કેમ્પસ, ઉધના-મગદલ્લા રોડ, સુરત - ૩૯૫ ૦૦૭, ગુજરાત, ભારત.
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-: પરિપત્ર :-

વિનયન વિદ્યાશાખા હેઠળની સંલગ્ન તમામ સ્નાતક તથા અનુસ્નાતક કોલેજોનાં આચાર્યશ્રીઓ તથા ડિપાર્ટમેન્ટનાં વડાશ્રીને જણાવવાનું કે, શૈક્ષણિક વર્ષ ૨૦૧૯–૨૦,૨૦૨૦–૨૧ અને ૨૦૨૧–૨૨ માટે જૂન–૨૦૧૯ થી અમલમાં આવતાં F.Y./S.Y./T.Y.B.A.સેમેસ્ટર–૧ થી ૬ તથા M.A સેમેસ્ટર ૧ અને ૨ , M.A.પાર્ટ–૧ રેગ્યુલર/ એક્ષટર્નલનાં અભ્યાસક્રમ અંગે અંગ્રેજી વિષયની અભ્યાસસમિતિની તા.૨૦–૦૨–૨૦૧૯ ની સભાનાં ઠરાવ ક્રમાંકઃ ૨ અન્વયે કરેલ નીચેની ભલામણ વિનયન વિદ્યાશાખાની તા.૨૫/૦૪/૨૦૧૯ ની સભાનાં ઠરાવ ક્રમાંક : ૨૪ અન્વયે સ્વીકારી એકેડેમિક કાઉન્સિલને કરેલ ભલામણ એકેડેમિક કાઉન્સિલએ તેની તા.૦૭/૦૬/૨૦૧૯ની સભાના ઠરાવ ક્રમાંકઃ૮૪ અન્વયે સ્વીકારી મંજૂર કરેલ છે. તેની જાણ સંબંધકર્તા શિક્ષકો અને વિદ્યાર્થીઓને કરવી, તદ્ઉપરાંત તેનો અમલ કરવો.

અંગ્રેજી વિષયની અભ્યાસસમિતિની તા.૨૦–૦૨–૨૦૧૯ ની સભાનાં ઠરાવ ક્રમાંકઃ૨

:: આથી ઠરાવવામાં આવે છે કે,

(૧) શૈક્ષણિક વર્ષ ૨૦૧૯–૨૦,૨૦૨૦–૨૧ અને ૨૦૨૧–૨૨ માટે B.A.,Core Compulsory (Special) ,Core Elective (Subsidiary) અને Core Compulsory Course in English (ફરજિયાત અંગ્રેજી)નાં અભ્યાસક્રમ તૈયાર કરવામાં આવ્યા. જેની આગળની કાર્યવાહી માટે વિનયન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

(૨) B.A. Sem -I to Sem VI સુધી નાં Core-Compulsory Course in English (ફરજિયાત અંગ્રેજી) નાં WSC અને LTL માટેનાં અભ્યાસક્રમ(Text Books) નક્કી કરવામાં આવ્યા. જેની માહિતી Appendix – 1 માં હવે પછી આપવામાં આવશે. જેની આગળની કાર્યવાહી માટે વિનયન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

(૩) B.A. Sem -I to Sem VI સુધીનાં Core-Compulsory (Special English) અને Core Elective (Subsidiary) નો અભ્યાસક્રમ(Text Books) તૈયાર કરવામાં આવ્યો. જેની આગળની કાર્યવાહી માટે વિનયન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

(૪) M.A.Part- Sem-I to Sem- II નો અભ્યાસક્રમ (Text Books) નક્કી કરવામાં આવ્યો. જેની આગળની કાર્યવાહી માટે વિનયન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

વિનયન વિદ્યાશાખાની તા.૨૫/૦૪/૨૦૧૯ની સભાનાં ઠરાવ ક્રમાંકઃ ૨૪

:: આથી ઠરાવવામાં આવે છે કે, અંગ્રેજી વિષયની અભ્યાસસમિતિની તા.૨૦–૦૨–૨૦૧૯ ની સભાનાં ઠરાવ ક્રમાંકઃ૨ અન્વયે કરેલ ભલામણ સ્વીકારી મંજૂર કરવા એકેડેમિક કાઉન્સિલને ભલામણ કરવામાં આવે છે.

એકેડેમિક કાઉન્સિલની તા.૦૭/૦૬/૨૦૧૯ ની સભાનાં ઠરાવ ક્રમાંકઃ ૮૪

:: આથી ઠરાવવામાં આવે છે કે, અંગ્રેજી વિષયની અભ્યાસસમિતિએ તેની તા.૨૦–૦૨–૨૦૧૯ની સભાના ઠરાવ ક્રમાંક : ૨ અન્વયે ભલામણ કરેલ વિનયન વિદ્યાશાખાએ તેની તા.૨૫/૪/૨૦૧૯ ની સભાના ઠરાવ ક્રમાંક : ૨૪ અન્વયે સ્વીકારેલ અભ્યાસક્રમ સ્વીકારી મંજૂર કરવામાં આવે છે.

બિડાણઃ ઉપર મુજબ

ક્રમાંક : એકે./પરિપત્ર/૧૦૩૭૫/૧૯
તા. ૨૧–૦૬–૨૦૧૯

ઈ.ચા. કુલસચિવ

પ્રતિ,

૧) વિનયન વિદ્યાશાખા હેઠળની સંલગ્ન તમામ સ્નાતક કોલેજોનાં આચાર્યશ્રીઓ તથા ડિપાર્ટમેન્ટનાં વડાશ્રી.
૨) અધ્યક્ષશ્રી, વિનયન વિદ્યાશાખા.
૩) પરીક્ષા નિયામકશ્રી, પરીક્ષા વિભાગ, વીર નર્મદ દ. ગુ. યુનિવર્સિટી, સુરત.

.....તરફ જાણ તેમજ અમલ સારૂ.

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Circular

AllPrincipals of affiliated colleges and Heads of University Departments under the faculty of Arts are hereby informed that the recommendation under the resolution No. 2 made by the Board of Studies of English at its meeting held on 20/02/2019 regarding the syllabi of F.Y./S.Y./ T.Y., B.A. Sem. I to VI and M.A. Sem. I and II, M.A. Part I regular/external programmesfor the academic years 2019-2020, 2020-2021, 2021-2022. in effect from June 2019, which was approved by the Faculty of Arts with reference to its resolution No. 24 at its meeting held on 25/04/2019, and was recommended to the Academic Council. The same has been accepted and approved by Academic Council with reference to its resolution No. 84 at its meeting held on 07/06/2019, and the same has also been recommended by it, of which the related teachers and students are informed and this shall be in effect now onwards.

Resolution No. 02 made by Board of Studies of English at its meeting held on 20/02/2019

1. The syllabi of B.A. Core Compulsory (Special), Core Elective (Subsidiary) and Core Compulsory Course in English (Compulsory English) for the academic years 2019-2020, 2020-2021 and 2021-2022 have been designed, and the same has been recommended to the Faculty of Arts for further procedure.
2. The syllabi (textbooks) for WSE and LTL regarding Core Compulsory in English (Compulsory English) for B.A. Sem. I to Sem. VI have been finalized whose information shall be given laterin Appendix 01. The same has been recommended to the Faculty of Arts for further procedure.
3. The syllabi (textbooks) of Core-Compulsory (Special English) and Core- Elective (Subsidiary) for B.A. Sem. I to Sem. VI has been prepared. The same has been recommended to the Faculty of Arts for further procedure.
4. The syllabi (textbooks) of M.A. Part I for Sem. I and Sem. II has been finalized.The same has been recommended to the Faculty of Arts for further procedure.

The resolution No. 24 of the meeting held by Faculty of Arts on 25/04/2019

It is resolved hereby that the recommendation made under the resolution No.02 of the meeting of the Board of Studies of English held on 20/02/2019 has been accepted and is recommend hereby to Academic Council for its approval

The Resolution No. 84 of the meeting of Academic Council held on 07/06/2019

It is resolved hereby that the syllabi recommended by the Board of Studies of English with reference to its resolution No. 02 at its meeting held on 20/02/2019, was accepted by Faculty of Arts with reference to its resolution no. 24 at its meeting held on 25/04/2019, and which has been accepted and approved hereby.

ENCL: As mentioned above
No. ACA/Circular/10375/19
Date: 21/06/2019

Sd
Registrar

I/C Registrar
Veer Narmad South Gujarat University
SURAT.

(Translated from Gujarati into English)

Master of Arts (English)

Name of Program	**Master of Arts (English)**
Abbreviation	**MA**
Duration	**2 Years**
Eligibility Criteria	B.A./ Bachelor Degree in English
Objective of Program	The core objective of the programme is to prepare students for taking careers in teaching English language and literature, Media-communication, copy editing, proof reading, script writing, to engage them in translation project, and to provide an exposure in research in the areas of literatures and language.
Program Outcome	**PO1:** To provide the students with a higher degree of exposure, appropriate at the postgraduate level, to literature, criticism and theory and language studies. **PO2:** To develop an aptitude for research in students for their possible further study for a research degree like M.Phil/Ph.D. **PO3:** To inspire and mentor students to develop varied skills through extracurricular activities like sports, cultural activities and social service for the eventual nation building. **PO4:** To make the students acquire employable skills in the areas of English, translation studies and context writing in Mass Media.
Program Specific Outcomes	**PSO1:** To train the students into the critical reading and analysis of the works in English **PSO2:** To develop and refine the students' communicative skills in English **PSO3:** To train the students for academic jobs related to teaching and researchat various levels, translator's jobs, the language oriented jobs in Mass Media, Language tests like TOEFL and IELTS, and competitive examinations like GPSC, UPSC and others.

Mapping between POs and PSOs

	PSO1	PSO2	PSO3
PO1	■	■	
PO2	■		■
PO3	■		
PO4	■	■	■

Medium of Instruction	English
Program Structure	Semester 3

Course Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
1901130203010001	Literary Form: Novel	4	0	4	2 hrs	50	20	70
1901130203020001	Literary Criticism	4	0	4	2 hrs	50	20	70
1901130203030001	Indian Writing in English	4	0	4	2 hrs	50	20	70
1901130203040001	American Literature: (Novel, Poetry) OR	4	0	4	2 hrs	50	20	70
1901130203040002	English Language Teaching							
1901130203050001	Multi-disciplinary Course: (Drama and History)	4	0	4	2 hrs	50	20	70
1901130203060001	Term Paper	2	NA	2	NA	70	-	70

	Total	22	0	22				
Program Structure		Semester 4						
Course Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
2001130204010001	Literary Form: Drama	4	0	4	2 hrs	50	20	70
2001130204020001	Literary Criticism and Theory	4	0	4	2 hrs	50	20	70
2001130204030001	World Literature in translation	4	0	4	2 hrs	50	20	70
2001130204040001	American Literature: (Drama, Non-fictional Prose). OR	4	0	4	2 hrs	50	20	70
2001130204040002	English Language Teaching							
2001130204050001	Multi-disciplinary Course (Novel and History)	4	0	4	2 hrs	50	20	70
2001130204060001	Term Paper	2	NA	2	NA	70	-	70
	Total	22	0	22				

Master of Arts (English):3rd Semester

Course: 1901130203010001: Literary Form: Novel

Course Code	**1901130203010001**
Course Title	**Literary Form: Novel**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	To familiarise students with the nature and history of the literary form of novel in different literatures.
Course Objective	To introduce students to the reading of representative novels of English literature and Indian English literature.
Course Outcomes	**CO1:** To acquaint students with the defining features of the form of novel **CO2:** To familiarize students with the development of the form of novel in historical context **CO3:** To familiarize students in the reading of novels in terms of the form and history of fiction
Mapping between COs with PSOs	PSO1 PSO2 PSO3 CO1 [redacted] CO2 [redacted] CO3 [redacted]
Pre-requisite	Familiarity with various forms of literature
Course Content	**Unit 1:** Samuel Richardson – *Pamela*; **Unit 2:** Thomas Hardy – *The Mayor of Casterbridge*; **Unit 3:** A. S. Byatt, *Possession*; **Unit 4:** Vikram Seth, *An Equal Music*.
Reference Books	-
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva

	voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1901130203020001: Literary Criticism

Course Code	1901130203020001
Course Title	Literary Criticism
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	To acquaint students with the major critical trends, critical issues and major critics in the history of literary criticism from the ancient classical times to the first half of the twentieth century, and to give them exposure to representative original critical essays, and make them understand the similarity as well as contestation in relation to varied critical approaches.
Course Objective	To make students understand the history, complexity and approaches of literary criticism from classical times to the first half of the twentieth century.
Course Outcomes	**CO1:** To acquaint students with the principles and history of criticism. **CO2:** To familiarize students with the classical, romantic, modernist, the New critical and Marxist orientations with the reading of the critical essays representative of the critical trends. **CO3:** To initiate the students into a critical discourse of variety and contestation through various original critical essays.
Mapping between COs with PSOs	PSO1 / PSO2 / PSO3 CO1 / [redacted] / [redacted] CO2 / [redacted] / [redacted] CO3 / [redacted] / [redacted]
Pre-requisite	Historical awareness of major critical approaches and concepts
Course Content	**Unit1:** Plato, Republic, *Book X.* **Unit 2:** Horace, "On the Art of Poetry" **Unit 3:** Aristotle, Poetics, Chapters VI, XIII, XIV **Unit 4:** Wordsworth "Preface to Lyrical Ballads" **Unit 5:** T. S. Eliot, "The frontiers of criticism" **Unit 6:** I. A. Richards, "Fourkinds of meaning" **Unit 7:** Mark Schorer, "Techniqueas discovery" **Unit 8:** Georg Lukács, "Theideology of modernism"
Reference Books	-Classical Literary Criticism, Translated with an Introduction by T. S. Dorsch (England: Penguin Books, 1965). - Aristotle, Aristotle's Theory of Poetry and Fine Arts, Translated by S. H. Butcher, New York: Dover Publications, Inc, 1951. - Plato, The Republic, Translated by Benjamin Jowett Noida: Classics, 2018, Reprint. - D. J. Enright & Ernest de Chickera (eds.) English Critical Texts: 16th Century to 20th Century, London: OUP, 1968. - B. Das & J. M. Mohanty, (eds.) Literary Criticism: A Reading, Calcutta: OUP, 1985. - Lodge, David. (ed.) 20th Century Literary Criticism: A Reader, London: Longman, 1972. - Eliot, T.S., On Poetry and Poets. London: Faber and Faber, 1971.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester.The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce

	and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1901130203030001: Indian Writing in English

Course Code	**1901130203030001**
Course Title	**Indian Writing in English**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	To familiarize students with the selected works of Indian literature in English in term of history and development of Indian writing in English
Course Objective	To acquaint students with Indian English literary works and familiarize them with interactive context of English and Indian reality
Course Outcomes	**CO1:** To acquaint the students with Indian literature written in English. **CO2:** To familiarize the students with the works of Indian writing in English in terms poetry and fiction in historical context. **CO3:** To train the students in the reading of the works of Indian writing in English with reference to themes and forms in Indian Context.
Mapping between COs with PSOs	PSO1 / PSO2 / PSO3 CO1 / / / CO2 / / / CO3 / / /
Pre-requisite	Exposure to Indian English writings
Course Content	**Unit 1:** Raja Rao, Kanthapura **Unit 2:** R. K. Narayan, The Guide **Unit 3:** Anita Desai, Baumgartner's Bombay **Unit 4:** Selected Poems of Jayant Mahapatra (Please see Appendix A for the List of Poems) Appendix A Selected Poems of Jayant Mahapatra: 1. 'Dawn at Puri' 2. 'The Exile' 3. 'Summer' 4. 'The Moon Moments' 5. 'The Door' 6. 'The Abandoned British Cemetery at Balasore' 7. 'Total Solar Eclipse' 8. 'Walking by the River' Vilas Sarang (ed.) Indian English Poetry Since 1950: An Anthology (Disha Books, 1995)
Reference Books	-
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

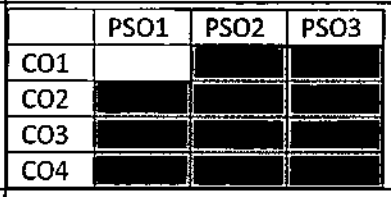
Course:1901130203040001: American Literature: (Novel, Poetry)

Course Code	**1901130203040001**

Course Title	**American Literature: (Novel, Poetry)**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	To familiarize students with the selected novels and poems of American literature in terms of its history and society
Course Objective	To acquaint students withAmerican novels and poems leading to their thematic, formal and socio-historical studies
Course Outcomes	**CO1:** To acquaint the students with history and development of American Literature. **CO2:** To familiarize the students with the works of American literature in terms of fiction, poetry and drama. **CO3:** To train the students in the reading of American literary works in terms of themes, forms and socio historical context.
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 | | | [redacted] CO2 | [redacted] | [redacted] | [redacted] CO3 | [redacted] | [redacted] | [redacted]
Pre-requisite	Exposure to American literary writings
Course Content	**Unit 1:** Ernest Hemingway – *The Old Man and the Sea* **Unit2:** Mark Twain – *Adventures of Huckleberry Finn* **Unit3:** Saul Bellow, *Henderson the Rain King* **Unit4:** Selected Poems of Robert Frost (Please see Appendix B for the List of Poems) 'Appendix B' 'Selected Poems of Robert Frost:' 'Mending Wall' 'The Death of a Hired Man' 'Home Burial' 'After Apple Picking' 'West-running Brook' 'An Old Man's Winter Night' 'Design' 'Birches' 'Stopping by Woods on a Snowy Evening' 'The Poems of Robert Frost, New York: Modern Library, 1946.'
Reference Books	-
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1901130203040002: English Language Teaching

Course Code	**1901130203040002**
Course Title	**English Language Teaching**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	To acquaint the students with the concepts of English Language Teaching in Indian context and to train them into becoming ELT professionals

Course Objective	To familiarize students with thebackground of ELT, various methods and approaches and make them ELT professionals
Course Outcomes	**CO1:**To develop the learners understanding regarding the history and development of ELT. **CO2:**To acquaint them with various Conventional concepts of Method for teaching English language. **CO3:** To acquaint the learners with the Post-method Approaches for teaching English language. **CO4:** To acquaint the learners with the concept of Teaching English for Specific
Mapping between COs with PSOs	
Pre-requisite	Basic proficiency in English language
Course Content	**Unit 1 Historical Overview of English Language Pedagogy** a. Beginnings of English language teaching in India b. Development of ELT as a field of study c. Changes in ELT pedagogy in India and Gujarat d. English as a lingua franca and English as Language of opportunities **Unit 2 Pedagogical Trends I: Conventional concepts of Method** a. Difference between "method" and "approach" b. Grammar-translation method c. Direct Method d. Audio-lingual Method e. Alternative methods: The Silent Way, Total Physical Response **Unit 3 Pedagogical Trends II: Post-method Approaches** a. Communicative Approach and Post-CLT scenario b. Content-Based Instruction and Competency-Based Instruction c. Task-Based Language Teaching d. Alternative approaches: Co-operative Learning, Whole Language Approach, Multiple Intelligences and constructivism. **Unit 4 Teaching English for Specific Purposes** a. Need for teaching ESP in India b. General purpose English vs ESP c. ESP syllabus design and methodology d. Taxonomy of ESP and Classification of ESP e. Needs Analyses
Reference Books	Brown, H. D. (2004). Language assessment: Principles and classroom practices. New York: Pearson. Graddol, D. (2010) English next India. London: British Council. Hutchinson, Tom & Waters, Alan (1987) English for Specific Purposes. Cambridge University. Morgan, J. &Rinvolucri, M. (2007). Vocabulary (2nd Ed). Resource books for teachers. Oxford. Kumaravadivelu, B. (2006). Understanding language teaching: From method to pos method. Mahwah, NJ: Lawrence Erlbaum. Larsen-Freeman, D. (2008) Techniques and principles in language teaching. http://www.scribd.com/doc/52575789/techniques-and-principles-in-language-teaching-larsenfreeman Richards, J., & Rogers, T.S. (2001). Approaches and methods in language teaching. Cambridge: Cambridge University Press. Harding, K. (2007). English for specific purposes. OUP. Hyland, K. (2006) English for academic purposes: An advanced resource book.

	PSO1	PSO2	PSO3
CO1			
CO2			
CO3			
CO4			

	London
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

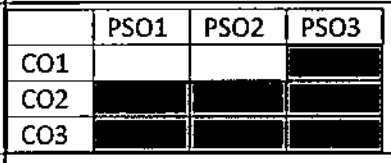
Course:1901130203050001: Multi-disciplinary Course: (Drama and History)

Course Code	**1901130203050001**
Course Title	**Multi-disciplinary Course: (Drama and History)**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	To make students relate the history and drama in multidisciplinary contexts of world literature, and make them understand and critically comment on the mutually beneficial relationship of history and drama
Course Objective	To make students comprehend and learn the method of reading the multidisciplinary study of history and drama in world context to a possible degree
Course Outcomes	**CO1:** To help students relate literature to other disciplines. **CO2:** To train students to read literary works in the light of history **CO3:** To familiarize students with the discourse of history and the relevance of history in various forms to the study of literature
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 | | | ■ CO2 | ■ | ■ | ■ CO3 | ■ | ■ | ■
Pre-requisite	Exposure to discourse of history and literature
Course Content	**Unit 1:**Dharamvir Bharti, *AndhaYug*; **Unit 2:**Bertolt Brecht, *The Good Woman of Setzuan*, **Unit 3:** Vijay Tendulkar, *Encounter in Umbugland*; **Unit 4:** John Osborne, *Look Back in Anger*
Reference Books	-
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

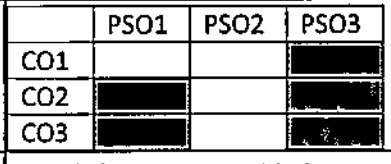
Master of Arts (English): 4th Semester

Course: 2001130204010001: Literary Form: Drama

Course Code	**2001130204010001**
Course Title	**Literary Form: Drama**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021

Purpose of Course	To familiarise students with the nature and history of the literary form of drama in different literatures.
Course Objective	To introduce students to the reading of representative dramatic works of English literature and Indian English literature.
Course Outcomes	**CO1:** To acquaint students with the defining features of the form of drama **CO2:** To familiarize students with the development of the form of drama in historical context. **CO3:** To train students in the reading of drama in terms of the form and history of drama
Mapping between COs with PSOs	
Pre-requisite	Familiarity with various forms of literature
Course Content	**Unit 1:** Shakespeare, *Antony and Cleopatra* **Unit 2:** Oliver Goldsmith, *She Stoops to Conquer* **Unit 3:** Harold Pinter, *Birthday Party* **Unit 4:** Girish Karnad, *Nagamandala*
Reference Books	-
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 2001130204020001:Literary Criticism and Theory

Course Code	**2001130204020001**
Course Title	**Literary Criticism and Theory**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	To acquaint students with the major critical trends, critical issues and major critics in the history of literary criticism from the ancient classical times to the contemporary times, and to give them an exposure to representative original critical essays, and make them understand the similarity as well as contestation in relation to varied critical approaches.
Course Objective	To make students understand the history, complexity and approaches of literary criticism from classical times to the contemporary times.
Course Outcomes	**CO1:** To acquaint the students with the principles and history of criticism. **CO2:** To familiarize the students with the romantic and Victorian criticism and the recent critical trends like structuralism, post-structuralism, deconstruction, reader response, feminist criticism and post-colonialism. **CO3:** To initiate the students into a critical discourse of variety and contestation through various original critical essays.
Mapping between COs with PSOs	
Pre-requisite	upgraded exposure to critical approaches and concepts

Course Content	**Unit 1:** Samuel Johnson, *Preface to Shakespeare* **Unit 2:** S. T. Coleridge, *BiographiaLiteraria, Chapter XIV* **Unit 3:** D. H. Lawrence, *"Why the Novel Matters"* **Unit 4:** Longinus, *On the Sublime*, Chapters 1, 2 and 8. **Unit 5:**Tzvetan Todrov, "The typology of detective fiction" **Unit 6:**Georges Poulet "Phenomenology of Reading" **Unit 7:**Sandra M. Gilbert, "Literary paternity" **Unit 8:**Michel Foucault, "What is an author?"
Reference Books	D. J. Enright & Ernest de Chickera (eds.) English Critical Texts: 16th Century to 20th Century, London: OUP, 1968. B. Das & J. M. Mohanty (eds.) Literary Criticism: A Reading, Calcutta: OUP, 1985. Lodge, David. (ed.) Modern Criticism and Theory: a Reader, London: Longman, 1988. David, Robert Con (ed.) Contemporary Literary Criticism: Modernism Through Poststructuralism. New York and London: Longman, 1986.
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 2001130204030001: World Literature in translation

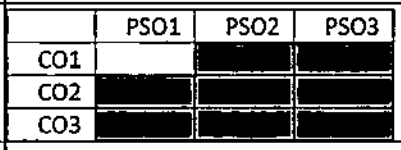
Course Code	**2001130204030001**
Course Title	**World Literature in translation**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	To familiarize students with the selected works of world literature in English translationin comparative context and acquaint them with world literary traditions.
Course Objective	To acquaint the students with the worksof world literature in English translation and familiarize them with comparative analysis of various literary works
Course Outcomes	**CO1:** To acquaint students with the classics in the world literature. **CO2:** To familiarize students with the world classics in various literary forms **CO3:** To cultivate the sense of comparison and analysis in students.
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 | | | [redacted] CO2 | [redacted] | [redacted] | [redacted] CO3 | [redacted] | [redacted] | [redacted]
Pre-requisite	Acquaintance with world literature
Course Content	**Unit 1:** Jean Paul Sartre, *The Flies* **Unit 2:** Maxim Gorky, *Mother* **Unit 3:** Henrik Ibsen, *A Doll's House* **Unit 4:** Franz Kafka, *The Metamorphosis*
Reference Books	-
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 2001130204040001: American Literature: (Drama, Non-fictional Prose)

Course Code	**2001130204040001**
Course Title	**American Literature: (Drama, Non-fictional Prose)**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	To familiarize students with the selected drama and non-fictional prose of American literature in terms of its history and society
Course Objective	To acquaint students with American drama and non-fictional prose leading to their thematic, formal and socio-historical studies
Course Outcomes	**CO1:** To acquaint the students with the history and development of American literature. **CO2:** To familiarize the students with American literary works in terms of the forms of drama and Prose. **CO3:** To train students in the reading of American literary works in terms of themes, forms and socio-historical context.
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 CO2 CO3
Pre-requisite	Exposure to American literary writings
Course Content	**Unit 1:** Tennessee Williams – *A Streetcar Named Desire* **Unit 2:** Selected essays of Ralph Waldo Emerson (Please see Appendix C for the List of Essays) Appendix C Selected essays of Ralph Waldo Emerson 'The Poet' 'Self-Reliance' 'Nature' 'Love' 'Friendship' 'Experience' 'Manners' Brooks Atkinson (ed.) The Selected Writings of Ralph Waldo Emerson (New York: The Modern Library, 1964). **Unit 3:** John Hersey, *Heroshima* **Unit 4:** Ernest Hemingway, *A Movable Feast*;
Reference Books	-
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 2001130204040002:English Language Teaching

Course Code	**2001130204040002**
Course Title	**English Language Teaching**
Credit	4
Teaching per Week	4 hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021

Purpose of Course	To make students aware of functional aspects of communication in personal and professional life. To help them understand the effective pedagogy for teaching oral and written communication in all walks of life.
Course Objective	To familiarize students with concepts of verbal and non-verbal communication and help them integrate ICT in ELT classrooms.
Course Outcomes	**CO1:** To enable the students to understandthe process of communication, the importance of interpersonal skills, the significance of attitudes in a profession and leadership qualities **CO2:** To enable the students to teach written communication effectively **CO3:** To enable the learners to understand the use of ICT in an ELT classroom
Mapping between COs with PSOs	
Pre-requisite	Basic proficiency in English language and communication
Course Content	**Unit 1. Process of Communication** a. Communication – a process b. Verbal and non-verbal communication c. Barriers to communication **Unit 2. Communication Situation** a. Presentation skills b. Group Discussions/meetings/conference skills c. Interview skills d. Conversation skills g. Tasks for developing Critical Thinking skills **Unit 3. Written Communication** a. Letter Writing – Formal/ Business Letters c. Writing CV/Resume d. Writing Reports/ notice/Invitation/Emails **Unit 4. ICT in ELT** a. Use of ICT for ELT b. Using technology effectively in the classrooms c. Computer assisted language learning (CALL) d. Webtools for ELT
Reference Books	Butterworth, John and JeoffThwaites. (2005), Thinking Skills. Cambridge Univ. Press. Feldman, Daniel A. (2004), Critical Thinking. New Delhi: Viva. Harmer, Jeremy. (2006), How to Teach English. New Delhi, Longman. Johnson, Karen. (1996), Understanding Communication in Second LanguageClassrooms. Cambridge Uni. Press. Richards, Jack C. (2005), Professional Development for Language Teachers. Cambridge Univ. Press. Stevens, Michael. (1999), How to be better at giving presentations. London: Koran Press Warschauer, M. and Healey, D. (1998). Computers and language learning: An Overview. Language Teaching, 31, 57-71. Warschauer, M. (2004). Technological Change and the Future of CALL. In S. Fotos and C. Browne (Eds.) New perspectives on CALL for second language classrooms. Mahwah, N.J.: L. Erlbaum Associates.
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 2001130204050001:Multi-disciplinary Course (Novel and History)

Course Code	**2001130204050001**

<table>
<tr><td>Course Title</td><td>Multi-disciplinary Course (Novel and History)</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per Week</td><td>4 hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>15 (Including Class work, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective From</td><td>June 2021</td></tr>
<tr><td>Purpose of Course</td><td>To make students relate the history and novels in multidisciplinary contexts of world literature, and make them understand and critically comment on the mutually beneficial relationship of history and novels</td></tr>
<tr><td>Course Objective</td><td>To make students comprehend and learn the method of reading the multidisciplinary study of history and novelsin world context to a possible degree</td></tr>
<tr><td>Course Outcomes</td><td>CO1: To help students relate Literature to other disciplines.
CO2: To train students into the reading of novels in terms of history.
CO3: To familiarize students with the discourse of history.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td><table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td></tr><tr><td>CO3</td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>Pre-requisite</td><td>Exposure to discourse of history and literature</td></tr>
<tr><td>Course Content</td><td>Unit 1:Keneally Thomas, Schindler's Ark
Unit 2: George Orwell, Burmese Days
Unit 3: Amrita Pritam, Pinjar (The Skeleton)
Unit 4: Manohar Malgonkar, A Bend in the Ganges</td></tr>
<tr><td>Reference Books</td><td>-</td></tr>
<tr><td>Teaching Methodology</td><td>Class work, Discussion, Self-Study, Seminars and/or Assignment</td></tr>
<tr><td>Evaluation Method</td><td>This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments through Viva voce and attendance marks; while the external evaluation will be out of 50 marks at the university examination.</td></tr>
</table>

એકેડમિક કાઉન્સિલ તા. 05/02/2022
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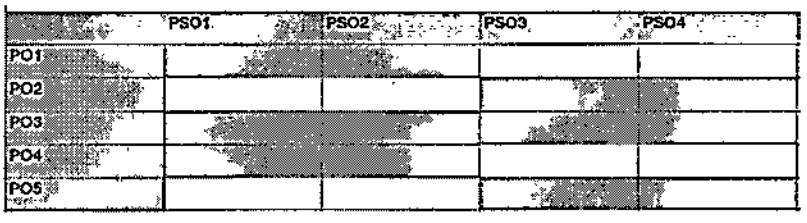
Department of Human Resource Development

Veer Narmad South Gujarat University, Surat

Master of Labour Welfare

	Master of Labour Welfare
Abbreviation	MLW
Duration	Two Years Full Time
Eligibility Criteria	Any Graduate with 45% marks in aggregate from a Recognized University. The minimum marks should be without rounding off.
Objective of the Programme	The Master of Labour Welfare designed to develop students into professionally competent and socially sensitive management graduates, fully equipped to take on the challenges of the corporate world. The programme explores the critical areas of contemporary human resources management, in conjunction with a comprehensive knowledge and understanding of the key functions of management and business. The broad objectives of this MLW programme are to sensitize students to the social, political, economic, and ecological environments of the society; to enable students to become effective business leaders and decision-makers to contribute to organisational effectiveness; to facilitate the use of systems thinking among the students to evolve possibilities while addressing various personal and organisational challenges; to develop a global perspective among students to respond to global challenges; and to impart values of intellectual honesty, justice and fairness.
Programme Outcome	**PO1:-** To understand human resource issues and management trends in a competitive global economy as well as a broad spectrum of state and federal employment legislation. **PO2:-** To equip students with the tools necessary to effectively meet the challenges of an ever-changing business climate. **PO3:-** To inculcate specialized knowledge and skills required by managers who are responsible primarily of managing human resources and improving industrial relations **PO4:-** To develop a sound theoretical base in the domain of Human Resource Management. **PO5:-** To develop communication, interpersonal skills and leadership qualities to work in and with teams in organizations.

Programme Specific Outcome	**Programme Specific Outcomes (PSO)** **PSO1:-** Understand the basic concepts of Human resources management and its applications in the individual, team and organizational levels. **PSO2:-** Theoretical Knowledge in Human Resource Planning, Organization Development, Industrial Relations, Organizational Behavior, Labour Laws, Employee Engagement and Talent Management, Corporate Social Responsibility and Interdisciplinary Subjects. **PSO3:-** Practical knowledge and training in various areas of HR such a recruitment, selection, induction, communication, performance appraisal, etc **PSO4:-** Practical exposure to the real life organizational situations and opportunities of Human resources management through the practical project studies Internship and a Problem centered study.
Mapping Between Po's and PSO's	
Medium of Instruction	English

Programme StructureSemester – I

Course Code	Title	Teaching Per Week	Course Credits	University Examination		Internal Marks	Total Marks
				Duration	Marks		
HRM-C-01	Fundamentals of Psychology	4	4	3 Hrs	70	30	100
HRM-C-02	Applied Economics	4	4	3 Hrs	70	30	100
HRM-C-03	Principles of Management	4	4	3 Hrs	70	30	100
HRM-C-04	Human Resource Management - I	4	4	3 Hrs	70	30	100
HRM-C-05	Labour Laws - I	4	4	3 Hrs	70	30	100
HRM-C-06	Research Methodology & Labour Statistics	4	4	3 Hrs	70	30	100

	Any One from the following						
HRM-ECT-01	Business Communication	2	2	3 Hrs	70	30	100
HR-ECT-02	Management and Financial Accounting	2	2	3 Hrs	70	30	100
HRM-ECT-3	Computer Application	2	2	3 Hrs	70	30	100
	Total Credits		26				

Programme StructureSemester – II

Course Code	Title	Teaching Per Week	Course Credits	University Examination		Internal Marks	Total Marks
				Duration	Marks		
HRM-C-07	Organizational Psychology	4	4	3 Hrs	70	30	100
HRM-C-08	Labour Economics	4	4	3 Hrs	70	30	100
HRM-C-09	Social Processes & Behavioural Issues	4	4	3 Hrs	70	30	100
HRM-C-10	Industrial Relations	4	4	3 Hrs	70	30	100
HRM-C-11	Labour Laws - II	4	4	3 Hrs	70	30	100
HRM-C-12	Organisational Development	4	4	3 Hrs	70	30	100
	Any One from the following						
HRM-ECT-01	Knowledge Management	2	2	3 Hrs	70	30	100
HRM-ECT-02	Legal Framework Surrounding CSR	2	2	3 Hrs	70	30	100
HRM-ECT-03	Industrial Sociology	2	2	3 Hrs	70	30	100
	Total Credits		26				

Programme StructureSemester – III

Course Code	Title	Teaching Per Week	Course Credits	University Examination		Internal Marks	Total Marks
				Duration	Marks		
HRM-C-13	Human Resource Development	4	4	3 Hrs	70	30	100
HRM-C-14	Business Laws	4	4	3 Hrs	70	30	100
HRM-C-15	Human Resource Management - II	4	4	3 Hrs	70	30	100
HRM-C-16	Performance Management & Talent Management	4	4	3 Hrs	70	30	100
HRM-C-17	Interpersonal Conflict and Managing Stress	4	4	3 Hrs	70	30	100
HRM-C-18	Labour Laws - III	4	4	3 Hrs	70	30	100
	Any One from the following						
HRM-ECT-01	HRD in Service Sector	2	2	3 Hrs	70	30	100
HRM-ECT-02	Industrial Safety	2	2	3 Hrs	70	30	100
HRM-ECT-03	Designing Effective CSR Strategy	2	2	3 Hrs	70	30	100
	Total Credits		26				

Programme StructureSemester – IV

Course Code	Title	Teaching Per Week	Course Credits	University Examination		Internal Marks	Total Marks
				Duration	Marks		
HR-C- 19	Labour Welfare and Social Security	4	4	3 Hrs	70	30	100
HR-C- 20	Compensation Management	4	4	3 Hrs	70	30	100
HR-C- 21	Strategic HRM	4	4	3 Hrs	70	30	100
HR-C- 22	International Human Resource Management	4	4	3 Hrs	70	30	100

HR-C- 23	Project Work	4	4	3 Hrs	70	30	100
	Any One from the following						
HR-ECT-01	Training and Development	2	2	3 Hrs	70	30	100
HR-ECT-02	EmergingTotal Quality Management	2	2	3 Hrs	70	30	100
HR-ECT-03	CSR Management & Sustainability Accounting	2	2	3 Hrs	70	30	100
	Total Credits		22				

MASTER OF LABOUR WELFARE (MLW) SEMESTER - I COURSE OBJECTIVE AND COURSE OUTCOME

Course Code: LW–C–01 Fundamentals of Psychology

Total Credit: 4

Course Objective: The course provides an outline on basic concepts of psychology. It is designed to help students to understand patterns of human behavior in various circumstances. It also provides the students with the inputs related to the topics like learning, motivation, intelligence, personality etc.

Course Outcome: Students will know the major concepts, perspectives, historical trends, empirical findings, research methods, and ethics in the field of psychology. Students will be able to demonstrate skills in research, communication, ethical behavior, complex cognitive processes, and professional development

Course Code: LW – C – 02 Applied Economics

Total Credit: 4

Course Objective: This is an introductory course in economics, which introduces students to the principles, concepts, data and analytical frameworks that economists use to understand the world around us. Students develop an understanding of how the economy works and how individuals, firms and governments make decisions and interact with one another in markets and other environments. This course prepares Economics students for further study and focuses on their ability to communicate about real-world issues and public policy debates through the lens of economics.

Course Outcome: On successful completion of this course, students will be able to demonstrate a solid understanding of the core concepts and tools of economics. Relate basic economic theory and principles to current economic issues and evaluate related public economic policies. Apply

economic principles and reasoning to solving business problems. Interpret charts, graphs, and tables and use the information to make informed judgments. Communicate their knowledge and understanding of economic issues using written, verbal and visual expression. Critically reflect on the broader social consequences of economic decision making.

Course Code: LW-C-03 Principles of Management

Course Credit: 4

Course Objective: Knowledge on the principles of management is essential for all kinds of people in all kinds of organizations. After studying this course, students will be able to have a clear understanding of the managerial functions like planning, organizing, staffing, leading and controlling. Students will also gain some basic knowledge on international aspect of management.

Course Outcome: To study about the concept and evolution of management, To know about the meaning and importance of planning, To understand the various forms of organisational structure and the concept of Staffing function, To understand the emerging trends and challenges in management, To study about various control techniques

Course Code: LW-C-04 Human Resource Management – I

Course Credit: 4

Course Objective: To enable the students to understand the HR Management and system at various levels in general and in certain specific industries or organizations. 2. To help the students focus on and analyse the issues and strategies required to select and develop manpower resources 3. To develop relevant skills necessary for application in HR related issues 4. To enable the students to integrate the understanding of various HR concepts along with the domain concept in order to take correct business decisions.

Course Outcome: On completion of this course, the students will be able CO1: To develop the understanding of the concept of human resource management and to understand its relevance in organizations. CO2: To develop necessary skill set for application of various HR issues. CO3: To analyze the strategic issues and strategies required to select and develop manpower resources. CO4: To integrate the knowledge of HR concepts to take correct business decisions.

Course Code: LW-C-05 Labour Laws – I

Course Credit: 4

Course Objective: 1. To study constitutional provisions regarding labour. 2. To study labour legislations pertaining to Industrial Relations.

Course Outcome: Learning outcomes after going through various labour laws, students will be conversant regarding conflict management in legal perspective and judicial system pertaining to labour management relations.

Course Code: LW-C-06 Research Methodology & Labour Statistics

Course Credit: 4

Course Objective: This course will emphasize the importance and limitations of theory and methodology in social science research as well as the purpose of applied research, program evaluation, policy analysis, and research ethics. Following are the course objectives: Familiarity with various methods of conducting empirical research. Familiarity with important research Statistical terms and concepts. Familiaility to assess the benefits of research applied to social sciences. Clarity of thinking in collection and interpretation of numerical data.

Course Outcome: To familiarize the participants with concepts and process of research To make the participants understand the application of research in business decision making To expose the participants to the tools and techniques in business research, To study about various measurement scales & preparation of research data, To learn about the format of business research, To study about various measurement scales & preparation of research data, To learn about the format of Research Report.

Course Code: LW-ECT-01 Business Communication

Course Credit: 2

Course Objective: To enable the students to become aware of their communication skills and sensitize them to their potential to become successful managers To introduce them to some of the practices in managerial communication that are in vogue To help them acquire some of the necessary skills to handle day-to-day managerial responsibilities, such as making speeches, controlling one-to-one communication, enriching group activities and processes, giving effective presentations, writing letters, memos, minutes.

Course Outcome: To equip the students with the necessary skills and techniques of communication to inform To inspire students and enlist their activity and willing cooperation in the performance of their jobs. It aims to make student aware about the importance, the role and

the content of soft skills through instruction, knowledge cooperation in the performance of their jobs. It aims to make student aware about the importance, the role and the content of soft skills through instruction, knowledge acquisition, and practice To develop and nurture the soft skills that help develop student as a team member, leader, and all round professional. To learn about employment communication.

Course Code: LW-ECT- Financial & Cost Accounting

Course Credit: 2

Course Objective: To help the students to develop cognizance of the importance of accounting in organization financial statements, To enable students to describe how people analyze the corporate financial under different conditions and understand why people describe the financial statements in different manner, To provide the students to analyze specific characteristics of Logistics Management Accounting and their future action for expenses and income, To enable students to synthesize related information and evaluate options for most logical and optimal solution such that they would be able to predict and control cost incurrence and improve results.

Course Outcome: Acquire conceptual knowledge of basics of accounting Identify events that need to be recorded in the accounting records Develop the skill of recording financial transactions and preparation of reports. Describe the role of accounting information and its limitations Equip with the knowledge of accounting process and preparation of final accounts of sole trader Identify and analyze the reasons for the difference between cash book and pass book balances Recognize circumstances providing for increased exposure to errors and frauds Determine the useful life and value of the depreciable asset.

Course Code: LW-ECT-03 Computer Application

Course Credit: 2

Course Objective: Objective is to understand basic concepts of Computer, Computer networks, Internetworks and cloud computing and providing basic understanding regarding application of Information Technology to various areas of management.

Course Outcome: Students learn basic concepts of Computer, Computer networks, Internetworks and cloud computing and providing basic understanding regarding application of Information Technology to various areas of management.

MASTER OF LABOUR WELFARE (MLW) SEMESTER - II COURSE OBJECTIVE AND COURSE OUTCOME

Course Code: LW–C–07 Organisational Psychology

Course Credit: 4

Course Objective: To train the students to carry our projects in the different areas of Industrial psychology, To make the students familiar with the psychological tests used for Industrial purposes, To impart the knowledge and skills for administering tests and writing their reports..

Course Outcome: Articulate key ideas concerning industrial psychology including processes regarding staffing, job analysis, training and development. B. Articulate key ideas concerning organizational psychology including motivation, attitudes, stress, fairness, leadership, teams and work behavior. C. Discuss key ideas concerning attitudinal and behavioral manifestations of the work setting, including consideration of issues such as stress, diversity, emotional intelligence, and teamwork.

Course Code: LW–C–08 Labour Economics

Course Credit: 4

Course Objective: To give an overview and understanding of the fundamental issues, insights, concepts and theories of labor economics, To learn the principles of wage determination and compensating wages, To analyze the major policy issues in labor economics. Such as the minimum wage, wage discrimination, and international competitiveness, To provide the student with a better understanding of the interrelationships between economics and human resource management.

Course Outcome: The paper makes students aware of different theories on labour and employment from the point of view of economic research. It provides a details analysis on the latest development of labour market in developing countries with reference to India The paper laid a special emphasis on informal sector and the problem of labour in India.

Course Code: LW–C–09 Social Processes and Behaviour Issues

Course Credit:4

Course Objective: The objective of this paper is to familiarize the student with basic concepts and behavioral process in an organization to enable him to develop and adopt effective strategies, To familiarize the students about the concept of organizational behaviour and its applications

Course Outcome: To understand the concept of Personality and Perception, To study the various theories governing leadership and motivation, To get an insight about group behavior, To know about the organisational conflict and management of conflict.

Course Code: LW–C–10 Industrial Relations

Course Credit: 4

Course Objective: The main objective is to introduce concept, system, and practices of Industrial Relations in Indian context and to make students understand major industrial Relations functions at various levels of organization and to develop their skill to analyze present and future trends in Industrial Relations practices. It also focuses on providing knowledge and skills necessary for HR managers to work competently in changing organizational and social environment.

Course Outcomes: The successful completion of this course shall enable the student: To understand facets of interactions between the employer and the employees. In such relations whenever there is a clash of interest, it may result in dissatisfaction for either of the parties involved and hence lead to industrial disputes or conflicts. To develop a comprehensive perspective about the legal frame work stipulated under the Industrial Disputes Act, 1947. To imbibe how to interact, negotiate and transact with Trade Unions balancing and improving the relations between the employer and the employees. To understand the procedure of disciplinary actions as per the Industrial Employment (Standing Orders) Act, 1946.

Course Code: LW–C–11 Labour Laws II

Course Credit:4

Course Objective: The objective is to enable the participants to familiarize themselves with important provisions of Industrial and labour laws which have substantial bearing on business decisions. Attempts will be made a) to give broad conceptual ideas of the laws taken for

discussion, and b) to develop an insight into legal implications of their more important provisions.

Course Outcomes: The successful completion of this course shall enable the student: To comprehend pensions and provident fund processes and manage simplified application thereof. To enable employment in departments of pension, provident fund, state insurance of organizations or compliance departments of factories. To judge the actual organizational situations and implications thereof via case based learning and analytical abilities. To equip to handle industrial disputes with detailed knowledge of actual organization scenarios and long-term impact of resolutions of both employees and employer. To gain knowledge related to disciplinary action and domestic inquiry.

Course Code: LW–C–12 Organisational Development

Course Credit:4

Course Objective: To understand the nature of the developmental process in organizations. To comprehend the main derives and approaches of the change, To realize and apply the stages of the organizational development process, To equip students with knowledge & skills required for effective change and organizational development, To Provide students with knowledge of resistance to change and techniques of handing it

Course Outcome: Gaining knowledge about organizational development process, How to change and develop organizations, Better understanding of the change management model, Skills needed to develop an action plan for the development process, Better understanding of change resistance and how to handle it,

Course Code:LW-ECT-01 Knowledge Management

Course Credit: 2

Course Objective: The objective of this course is to prepare students to understand the current theories, practices, tools and techniques in knowledge management (KM) to deal with the challenges with the organization and management of knowledge.

Course Outcome: Students will learn context and concept of Knowledge Management, practices for knowledge management and knowledge management technologies, students learn how to share knowledge and transfer knowledge. They learn how to do knowledge management audit.

Course Code: LW-ECT-02 Legal Framework Surrounding CSR

Course Credit: 2

Course Objective: focuses on providing theoretical knowledge and practical exposure on Corporate Social Responsibilities of the corporate sector towards society and the environment.

Course Outcome: In this subject, the students learn practical applicability and guidance under Companies Act 2013 which mandates CSR spends in Indian corporate. Creating awareness and develop important legal knowledge and its applicability which is mandated in the companies.

Course Code: LW-ECT-03 Industrial Sociology

Course Credit: 2

Course Objective: The course provides an opportunity to the student to understand the social dimension of the industry. This course is designed to make the students understand the process of group formation, human relations approach and the dynamics of Industrial Society

Course Outcome: Through sociology courses, even introductory courses, students learn a variety of sociology-related skills, including understanding how human behavior affects culture. These skills can help students as they come to understand the individuals they study and work with in research or in their daily lives

MASTER OF LABOUR WELFARE (MLW) SEMESTER – III COURSE OBJECTIVE AND COURSE OUTCOME

Course Code: LW–C–13 Human Resource Development

Course Credit: 4

Course Objective: To help students to develop HRD facilitator skills and develop understanding of various HRD systems and processes, To help students clear concept and processes of HRD functions.

Course Outcome: To provide the students a synthesized framework theory and practice, To impart fundamentals of HRD practices in organizations, Principles and Designing HRD Systems, To study the role performed by Line manager and HRD professional, To study the HRD climate, To study the importance of HRD Audit and Performance Management.

Course Code: LW–C–14 Business Laws

Course Credit:4

Course Objective: This course aims at making the student understand the legal aspects of business. It also aims at making students aware of the functioning of legal system with reference to business and familiarizes them with the latest amendments in various Business Laws

Course Outcome: To provide a basic understanding to the students about the relevant provisions of various laws, To familiarize the students various laws, which are to be observed in performing the day -to-day business, To study about the formation, incorporation and working of a company, To know about different latest provisions of the law relating to negotiable instruments.

Course Code: LW–C–15 Human Resource Management - II

Course Credit: 4

Course Objective: To enable the students to understand the HR Management and system at various levels in general and in certain specific industries or organizations. 2. To help the students focus on and analyze the issues and strategies required to select and develop manpower resources 3. To develop relevant skills necessary for application in HR related issues 4. To enable the students to integrate the understanding of various HR concepts along with the domain concept in order to take correct business decisions.

Course Outcome: On completion of this course, the students will be able CO1: To develop the understanding of the concept of human resource management and to understand its relevance in

organizations. CO2: To develop necessary skill set for application of various HR issues. CO3: To analyze the strategic issues and strategies required to select and develop manpower resources. CO4: To integrate the knowledge of HR concepts to take correct business decisions.

Course Code: LW–C–16 Performance Management and Talent Management

Course Credit: 4

Course Objective: Objective is to acquaint students about performance management concept and process. To know issues involved in performance management process and role of HR professionals. To understand Talent management concept, practices and process.

Course Outcome: Students learn about performance management concept and process. learn issues involved in performance management process and role of HR professionals and also learn to understand Talent management concept, practices and process.

Course Code: LW–C–17 Interpersonal Conflict and Managing Stress

Course Credit:4

Course Objective: To understand the conflict concept and process. To understand how to manage conflict in an organization. To understand meaning of stress and different types of stress and effects on job performance.

Course Outcome: To understand the conflict concept and process. To understand how to manage conflict in an organization. To understand meaning of stress and different types of stress and effects on job performance.

Course Code: LW–C–18 Labour Laws - III

Course Credit:4

Course Objective: The objective is to enable the participants to familiarize themselves with important provisions of Industrial and labour laws which have substantial bearing on business decisions. Attempts will be made a) to give broad conceptual ideas of the laws taken for discussion, and b) to develop an insight into legal implications of their more important provisions.

Course Outcomes: The successful completion of this course shall enable the student: To comprehend Employee State Insurance, Employment Standing order Act, and Social Security's

provisions processes and manage simplified application thereof. To judge the actual organizational situations and implications thereof via case based learning and analytical abilities

Course Code:LW-ECT-01 Human Resource Development in Service Sector

Course Credit: 2

Course Objective: To understand the context and characteristics of the service sector relevant to HRD, the special role of HRD I the service sector and the types of HRD interventions relevant to service organizations.

Course Outcome: To give a theoretical framework for budding HR professionals. To understand the importance of territory sector in developing human resources To equip future HR professionals industry ready with the required skill sets. To get an insight about competency building and development in service sector.

Course Code: LW-ECT-02 Industrial Safety

Course Credit: 2

Course Objective: To know about Industrial safety concepts and legal, humanistic, economic and social considerations, Safety management and health and environment safety and legal measures.

Course Outcome: Students learn concept, principles and practices of Industrial Safety, To learn role of management, Union, employee in safety, to learn issues related to health and environment and statutory provisions related to Industrial Safety.

Course Code:LW-ECT-03 Designing Effective CSR Strategy

Course Credit: 2

Course Objective: The course will prepare the students how to implement CSR strategy design, and help in undertaking CSR projects which are core functions of CSR in any industry.

Course Outcome: The students learn international framework on CSR and how to design strategy towards CSR and Develop and train the students for global CSR practices and international frameworks.

MASTER OF LABOUR WELFARE (MLW) SEMESTER - IV COURSE OBJECTIVE AND COURSE OUTCOME

Course Code:LW-C-19 Labour Welfare and Social Security

Course Credit: 4

Course Objective: To acquaint the student with labour welfare concept & Agencies. 2. To understand the statutory and non-statutory welfare program. 3. To make out difference causes of Accident & preventive steps, To acquaint students with social security concept scope and approaches.

Course Outcome: Students learn their idea about the welfare concept. Students learn different types of labour welfare programmers. Students would have grasped the major theme of Accident & occupational Diseases. Students learn concept, scope approaches of social security and understand the concepts of labour administration of state & central levels.

Course Code:LW-C-20 Compensation Management

Course Credit: 4

Course Objective: To understand the conceptual foundations for wages, To appreciate various theories on wages, To evolve a compensation package for workers and executives.

Course Outcome: Students learn Basic compensation management, wage determination, theories of wages and methods of wage fixation.

Course Code:LW-C-21 Strategic Human Resource Management

Course Credit: 4

Course Objective: To impart knowledge related to the strategic issues surrounding people at the work front and to expose the students towards multidimensional competitive forces affecting HR decisions.

Course Outcomes: The successful completion of this course shall enable the student: To develop a perspective of strategic human resource management and be able to distinguish the strategic approach to human resources from the traditional functional approach. To understand the relationship of HR strategy with overall corporate strategy and craft effective functional strategies. To learn about the Human Capital management strategy To develop an understanding regarding High performance and Employee resourcing strategy.

Course Code: LW-C-22 Corporate Leadership

Course Credit: 4

Course Objective: To develop the leadership qualities among HR professionals. To prepare them for the leadership role in corporate industry.

Course Outcomes: Students learn core qualities of leadership. They understand various types and styles of leadership. They will know the values of leadership. They will know the roadmap to become an organizational leader.

Course Code: LW-C-23 Project Work

Course Credit: 4

Course Objective: The course work builds research attitude among the students. It is focused on developing the student skill in conceptualization, collection of data and analysis, interpretation of data in form of a report on issues related to the different aspects of human resource development studied in the four semesters. The student gets an opportunity to carry out and in-depth study on a particular topic related to the field. The students learn to defend its work in front of experts.

Course Outcome: To undertake a problem centered study at a reputed organization on any of the HR topics learned, To prepare a research report based on the collection, analysis and interpretation of the data and present the findings and suggestions To test the level of practical knowledge gained out of completing the problem centered study To check the level of knowledge on the various topics studied in human resources throughout the course.

Course Code: LW-ECT-01Training and Development

Course Credit: 4

Course Objective: Objective is to introduce students to understand Training and Development concept and process

Course Outcomes: Students will learn concept, how to set objectives, how to identify training needs, how to design and implement training and how to evaluate training activities by using evaluation models.

Course Code: LW-ECT-02 Emerging Trends in HRM

Course Credit: 4

Course Objective: To introduce latest development in HR areas.

Course Outcome: Students learn and develop skill in current trends in HR: Diversity in Management, Knowledge Management, Emotional Intelligence, creativity and innovation and organization citizenship behaviour.

Course Code: LW–ECT–03 CSR Management and Sustainability Accounting
Course Credit: 2

Course Objective: This course aims to develop your understanding of key concepts and frameworks of cross sector collaboration. Corporate Responsibility and Accountability (CRA) examines how business manages its social, environmental and economic impact on society

Course Outcome: The students can learn the process of monitoring and evaluation on CSR and learn the various approaches of sustainability accounting, Strengthen the practical understanding on the planning, processing, and implementation of various mechanism of CSR.

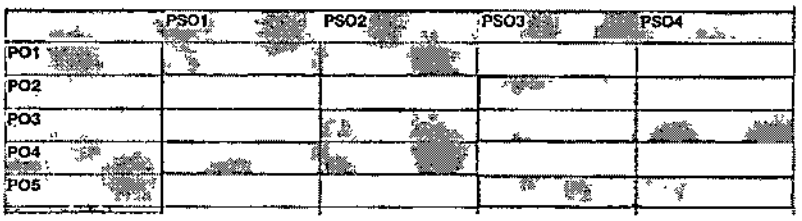
DEPARTMENT OF HUMAN RESOURCE DEVELOPMENT

Veer Narmad South Gujarat University, Surat

Master of Arts in Human Resource Development

	Master of Arts in Human Resource Development
Abbreviation	MAHRD
Duration	Two Years Full Time
	Any Graduate with 45% marks in aggregate from a Recognized University. The minimum marks should be without rounding off.
Objective of the Programme	The Master of Arts in Human Resource Development (MAHRD) designed to develop students into professionally competent and socially sensitive management graduates, fully equipped to take on the challenges of the corporate world. The programme explores the critical areas of contemporary human resources management, in conjunction with a comprehensive knowledge and understanding of the key functions of management and business. The broad objectives of this M.A. programme are to sensitise students to the social, political, economic, and ecological environments of the society; to enable students to become effective business leaders and decision-makers to contribute to organisational effectiveness; to facilitate the use of systems thinking among the students to evolve possibilities while addressing various personal and organisational challenges; to develop a global perspective among students to respond to global challenges; and to impart values of intellectual honesty, justice and fairness.

Programme Outcome	**PO1:-** To understand human resource issues and management trends in a competitive global economy as well as a broad spectrum of state and federal employment legislation. **PO2:-** To equip students with the tools necessary to effectively meet the challenges of an ever-changing business climate. **PO3:-** To inculcate specialized knowledge and skills required by managers who are responsible primarily of managing human resources and improving industrial relations **PO4:-** To develop a sound theoretical base in the domain of Human Resource Management. **PO5:-** To develop communication, interpersonal skills and leadership qualities to work in and with teams in organizations.
Programme Specific Outcome	**Programme Specific Outcomes (PSO)** **PSO1:-** Understand the basic concepts of Human resources management and its applications in the individual, team and organizational levels. **PSO2:-** Theoretical Knowledge in Human Resource Planning, Organization Development, Organizational Behavior, Labour Laws, Employee Engagement and Talent Management, Corporate Social Responsibility and Interdisciplinary Subjects. **PSO3:-** Practical knowledge and training in various areas of HR such a recruitment, selection, induction, communication, performance appraisal, etc **PSO4:-** Practical exposure to the real life organizational situations and opportunities of Human resources management through the practical project studies Internship and a Problem centered study.

Mapping Between Po's and PSO's	
Medium of Instruction	English

Programme StructureSemester – I

Course Code	Title	Teaching Per Week	Course Credits	University Examination		Internal Marks	Total Marks
				Duration	Marks		
HR-C- 01	Fundamentals of Psychology	4	4	3 Hrs	70	30	100
HR-C- 02	Applied Economics	4	4	3 Hrs	70	30	100
HR-C- 03	Industrial Sociology	4	4	3 Hrs	70	30	100
HR-C- 04	Human Resource Management	4	4	3 Hrs	70	30	100
HR-C- 05	Principles of Management	4	4	3 Hrs	70	30	100
HR-C- 06	Research Methodology	4	4	3 Hrs	70	30	100
	Any One from the following						
HR-ECT-01	Business Communication	2	2	3 Hrs	70	30	100
HR-ECT-01	Management and Financial Acoounting	2	2	3 Hrs	70	30	100
	Total Credits		26				

Programme StructureSemester – II

Course Code	Title	Teaching Per Week	Course Credits	University Examination		Internal Marks	Total Marks
				Duration	Marks		
HR-C- 07	Industrial Psychology	4	4	3 Hrs	70	30	100
HR-C- 08	Labour Economics	4	4	3 Hrs	70	30	100
HR-C- 09	Social Processes &Behavioural Issues	4	4	3 Hrs	70	30	100
HR-C- 10	Organizational Development	4	4	3 Hrs	70	30	100
HR-C- 11	Human Resource Development	4	4	3 Hrs	70	30	100
HR-C- 12	Applied Statistics	4	4	3 Hrs	70	30	100
	Any One from the following						
HR-ECT-01	Business Law	2	2	3 Hrs	70	30	100
HR-ECT-02	Office Management	2	2	3 Hrs	70	30	100
HR-ECT-03	Legal Framework Surrounding CSR	2	2	3 Hrs	70	30	100
	Total Credits		26				

Programme StructureSemester – III

Course Code	Title	Teaching Per Week	Course Credits	University Examination		Internal Marks	Total Marks
				Duration	Marks		
HR-C- 13	Human Resource Information and Control System	4	4	3 Hrs	70	30	100
HR-C- 14	Economics of Human Resources	4	4	3 Hrs	70	30	100
HR-C- 15	Labour Legislation - I	4	4	3 Hrs	70	30	100
HR-C- 16	Industrial Relations	4	4	3 Hrs	70	30	100
HR-C- 17	Global Human Resource Management	4	4	3 Hrs	70	30	100
HR-C- 18	Human Development and Human Rights	4	4	3 Hrs	70	30	100
	Any One from the following						
HR-ECT-01	HRD in Service Sector	2	2	3 Hrs	70	30	100
HR-ECT-02	Law and Economics	2	2	3 Hrs	70	30	100
HR-ECT-03	Designing Effective CSR Strategy	2	2	3 Hrs	70	30	100
	Total Credits		26				

Programme StructureSemester – IV

Course Code	Title	Teaching Per Week	Course Credits	University Examination		Internal Marks	Total Marks
				Duration	Marks		
HR-C- 19	Emerging Trends in HR	4	4	3 Hrs	70	30	100
HR-C- 20	Labour Legislation - II	4	4	3 Hrs	70	30	100
HR-C- 21	Compensation Management	4	4	3 Hrs	70	30	100
HR-C- 22	Strategic HRM	4	4	3 Hrs	70	30	100
HR-C- 23	Project Work	4	4	3 Hrs	70	30	100
	Any One from the following						
HR-ECT-01	Data Mining	2	2	3 Hrs	70	30	100
HR-ECT-02	Total Quality Management	2	2	3 Hrs	70	30	100
HR-ECT-03	CSR Management & Sustainability Accounting	2	2	3 Hrs	70	30	100
	Total Credits		22				

MA (HRD) SEMESTER - I COURSE OBJECTIVE AND COURSE OUTCOME

Course Code: HR–C–01 Fundamentals of Psychology

Total Credit: 4

Course Objective: The course provides an outline on basic concepts of psychology. It is designed to help students to understand patterns of human behavior in various circumstances. It also provides the students with the inputs related to the topics like learning, motivation, intelligence, personality etc.

Course Outcome: CO 1 Students will know the major concepts, perspectives, **historical trends,** empirical findings, research methods, and ethics in the field of psychology. **CO 2** Students will be able to demonstrate skills in research, communication, ethical behavior, complex cognitive processes, and professional development

Course Code: HR – C – 02 Applied Economics

Total Credit: 4

Course Objective: This is an introductory course in economics, which introduces students to the principles, concepts, data and analytical frameworks that economists use to understand the world around us. Students develop an understanding of how the economy works and how individuals, firms and governments make decisions and interact with one another in markets and other environments. This course prepares Economics students for further study and focuses on their ability to communicate about real-world issues and public policy debates through the lens of economics.

Course Outcome: CO 1 On successful completion of this course, students will be able to demonstrate a solid understanding of the core concepts and tools of economics. **CO 2** Relate basic economic theory and principles to current economic issues and evaluate related public economic policies. **CO 3**Apply economic principles and reasoning to solving business problems. Interpret charts, graphs, and tables and use the information to make informed judgments. **CO 4** Communicate their knowledge and understanding of economic issues using written, verbal and visual expression. **CO 5** Critically reflect on the broader social consequences of economic decision making.

Course Code: HR–C–03 Industrial Sociology

Total Credit: 4

Course Objective: The course provides an opportunity to the student to understand the social dimension of the industry. This course Is designed to make the students understand the process of group formation,humanrelations approach and the dynamics of Industrial Society.

Course Outcome: CO 1 Through sociology courses, even introductory courses, students learn a variety of sociology-related skills, including understanding how human behavior affects culture. **CO 2** These skills can help students as they come to understand the individuals they study and work with in research or in their daily lives

Course Code: HR-C-04 Human Resource Management

Course Credit: 4

Course Objective: To enable the students to understand the HR Management and system at various levels in general and in certain specific industries or organizations. To help the students focus on and analyze the issues and strategies required to select and develop manpower resources To develop relevant skills necessary for application in HR related issues To enable the students to integrate the understanding of various HR concepts along with the domain concept in order to take correct business decisions.

Course Outcome: CO 1 On completion of this course, the students will be able, To develop the understanding of the concept of human resource management and to understand its relevance in organizations. **CO 2** To develop necessary skill set for application of various HR issues. **CO 3** To analyze the strategic issues and strategies required to select and develop manpower resources. **CO 4** To integrate the knowledge of HR concepts and to take correct business decisions.

Course Code: HR-C-05 Principles of Management

Course Credit: 4

Course Objective: Knowledge on the principles of management is essential for all kinds of people in all kinds of organizations. After studying this course, students will be able to have a clear understanding of the managerial functions like planning, organizing, staffing, leading and controlling. Students will also gain some basic knowledge on international aspect of management.

Course Outcome: CO 1 To study about the concept and evolution of management, **CO 2** To know about the meaning and importance of planning, **CO 3** To understand the various forms of organizational structure and the concept of Staffing function, **CO 4** To understand the emerging trends and challenges in management, **CO 5** To study about various control techniques

Course Code: HR-C-06 Research Methodology

Course Credit: 4

Course Objective: This course will emphasize the importance and limitations of the Research methodology in social science research as well as the purpose of applied research, program evaluation, policy analysis, and research ethics. Following are the course objectives: Familiarity with various methods of conducting empirical research. Familiarity with important research terms and concepts. Familiaility to assess the benefits of research applied to social sciences. Clarity of thinking in collection and interpretation of numerical data.

Course Outcome: CO 1 To familiarize the participants with concepts and process of research To make the participants understand the application of research in business decision making **CO 2** To expose the participants to the tools and techniques in business research, **CO 3** To study about various measurement scales & preparation of research data, To learn about the format of business research, **CO 4** To study about various measurement scales & preparation of research data, **CO 5** To learn about the format of Research Report.

Course Code: HR-ECT-01 Business Communication
Course Credit: 2

Course Objective: To enable the students to become aware of their communication skills and sensitize the m to their potential to become successful managers To introduce the m to some of the practices in managerial communication that are in vogue To help them acquire some of the necessary skills to handle day-to-day managerial responsibilities, such as making speeches, controlling one-to-one communication, enriching group activities and processes, giving effective presentations, writing letters ,memos, minutes.
Course Outcome: CO 1 Students develop conviction in communication, effective verbal communication and non-verbal communication. **CO 2** Develop written communication skill including email etiquettes.

Course Code: HR-ECT-02 Management and Financial Accounting

Course Credit: 2

Course Objective: To help the students to develop cognizance of the importance of accounting in organization financial statements, To enable students to describe how people analyze the corporate financial under different conditions and understand why people describe the financial statements in different manner, To provide the students to analyze specific characteristics of Logistics Management Accounting and their future action for expenses and income, To enable students to synthesize related information and evaluate options for most logical and optimal solution such that they would be able to predict and control cost incurrence and improve results.

Course Outcome: CO 1 Acquire conceptual knowledge of basics of accounting Identify events that need to be recorded in the accounting records Develop the skill of recording financial transactions and preparation of reports. **CO 2** Describe the role of accounting information and its limitations Equip with the knowledge of accounting process and preparation of final accounts of sole trader Identify and analyze the reasons for the difference between cash book and pass book. **CO 3** Balances Recognize circumstances providing for increased exposure to errors and frauds determine the useful life and value of the depreciable asset.

MA (HRD) SEMESTER - II COURSE OBJECTIVE AND COURSE OUTCOME

Course Code:HR–C–07 Industrial Psychology

Course Credit: 4

Course Objective: To train the students to carry our projects in the different areas of Industrial psychology,To make the students familiar with the psychological tests used for Industrial purposes. for Industrial purposes,To impart the knowledge and skills for administering tests and writing their reports.

Course Outcome: CO 1 Articulate key ideas concerning industrial psychology including processes regarding staffing, job analysis, training and development, **CO 2** Articulate key ideas concerning organizational psychology including motivation, attitudes, stress, fairness, leadership, teams and work behavior, **CO 3** Discuss key ideas concerning attitudinal and behavioral manifestations of the work setting, including consideration of issues such as stress, diversity, emotional intelligence, and teamwork.

Course Code: HR–C–08 Labour Economics

Course Credit: 4

Course Objective: To give an overview and understanding of the fundamental issues, insights, concepts and theories of labor economics, To learn the principles of wage determination and compensating wages, To analyze the major policy issues in labor economics. Such as the minimum wage, wage discrimination, and international competitiveness, To provide the student with a better understanding of the interrelationships between economics and human resource management.

Course Outcome: CO 1 The paper makes students aware of different theories on labour and employment from the point of view of economic research. **CO 2** It provides a detail analysis on the latest development of labour market in developing countries with reference to India. **CO 3** The paper laid a special emphasis on informal sector and the problem of labour in India.

Course Code: HR–C–09 Social Processes and Behaviour Issues

Course Credit: 4

Course Objective: The objective of this paper is to familiarize the student with basic concepts and behavioral process in an organization to enable him to develop and adopt effective strategies

Course Outcome: CO 1 To familiarize the students about the concept of organizational behaviour and its applications, **CO 2** To understand the concept of Personality and Perception, To study the various

theories governing leadership and motivation, **CO 3** To get an insight about group behavior, To know about the organisational conflict and management of conflict

Course Code: HR–C–10 Organizational Development

Course Credit: 4

Course Objective: To understand the nature of the developmental process in organizations. To comprehend the main derives and approaches of the change, To realize and apply the stages of the organizational development process, To equip students with knowledge & skills required for effective change and organizational development, To Provide students with knowledge of resistance to change and techniques of handing it.

Course Outcome:

CO 1 Gaining knowledge about organizational development process, **CO 2** How to change and develop organizations, Better understanding of the change management model, **CO 3** Skills needed to develop an action plan for the development process, Better understanding of change resistance and how to handle it

Course Code: HR–C–11 Human Resource Development

Course Credit: 4

Course Objective: To help students to develop HRD facilitator skills and develop understanding of various HRD systems and processes, To help students clear concept and processes of HRD functions.

Course Outcome: CO 1 To provide the students a synthesized framework theory and practice, **CO 2** To impart fundamentals of HRD practices in organizations, Principles and Designing HRD Systems, **CO 3** To study the role performed by Line manager and HRD professional, **CO 4** To study the HRD climate, To study the importance of HRD Audit and Performance Management

Course Code: HR–C–12Applied Statistics

Course Credit: 4

Course Objective: To provide the basic statistical tools of management and business decisions, comprising: descriptive statistics; probability distributions; estimation; hypothesis testing; correlation and regression

Course Outcome: CO 1 On completion of this component of the module, you should be able to, Appreciate the value of a quantitative approach to solving a wide range of business problems, Recognize

the limitations of quantitative approach, **CO 2** Understand and apply basic statistical concepts within business situations. **CO 3** Benefit from modules of your degree programme that require possession of quantitative skills and knowledge.

Course Code: HR–ECT – 01: Business Law

Course Credit: 2

Course Objective: Thiscourseaimsatmakingthestudentunderstandthelegalaspectsofbusiness.Italso aims at making students aware of the functioning of legal system with reference to business and familiarizes them with the latest amendments in various Business Laws

Course Outcome: CO 1 To provide a basic understanding to the students about the relevant provisions of various laws, **CO 2** To familiarize the students various laws, which are to be observed in performing the day -to-day business, **CO 3** To study about the formation, incorporation and working of a company, **CO 4** To know about different latest provisions of the law relating to negotiable instruments

Course Code: HR–ECT – 02: Office Management

Course Credit: 2

Course Objective: The subject will allow students with little or no prior knowledge of a working office Management function to understand the methods and techniques of the discipline and to allow the students to move into a greater analysis of the specialize functions.

Course Outcome: CO 1 Students learn how to do effective and efficient office administration. Gain expertise in running day to day functions of an office. **CO 2** Learn to keep efficient records. Learn to organize various activities of an office.

Course Code: HR–ECT – 03: Legal Framework Surrounding CSR

Credit: 2

Course Objective: focuses on providing theoretical knowledge and practical exposure on Corporate Social Responsibilities of the corporate sector towards society and the environment.

Course Outcome: CO 1 In this subject, the students learn practical applicability and guidance under Companies Act 2013 which mandates CSR spends in Indian corporate. **CO 2** Creating awareness and develop important legal knowledge and its applicability which is mandated in the companies.

MA (HRD) SEMESTER - III COURSE OBJECTIVE AND COURSE OUTCOME

Course Code: HR–C–13 Human Resource Information & Control System

Course Credit: 4

Course Objective: The objective of the course is to acquaint the students about the concept of information systems, internet, World Wide Web, HRIS and their application in Human Resource Development.

Course Outcomes: CO 1 The successful completion of this course shall enable the student. To describe the role of information technology and information systems in business and with respect to different management levels. **CO 2** To understand the relevance of information in decision making. Identify and evaluate hardware and software requirements for information systems. **CO 3** To develop an understanding of the System Development Life Cycle in detail and analyze the MIS applications in different industries. **CO 4** To understand how Human Resources Information Systems (HRIS) are bought/developed and implemented for various levels in an organization. **CO 5** To explore the use of some common Information Systems development tools.

Course Code: HR–C–14 Economics of Human Resources

Course Credit: 4

Course objective: To make students understand application of the laws of economic science to themost important social sectors of education, training, health and environment so that theyunderstand how these sectors contribute in the development of organization's and broadlycountry's human capital and contribute in the growth and development process.

Course outcome: CO 1 Learning of skills of carrying out an economic analysis of education, training, health and environment.

Course Code:HR–C–15Labour Legislation - I

Course Credit: 4

Course Objective: The objective is to enable the participants to familiarize themselves with important provisions of Industrial and labour laws which have substantial bearing on business decisions.Attemptswillbemadea)togivebroadconceptualideasofthelawstakenfor discussion, and b) to develop an insight into legal implications of the more important provisions.

Course Outcomes: CO 1 The successful completion of this course shall enable the student: To comprehend pensions and provident fund processes and manage simplified application thereof. **CO 2** To enable employment in departments of pension, provident fund, state insurance of organizations or compliance departments of factories. **CO 3** To judge the actual organizational situations and implications thereof via case based learning and analytical abilities. **CO 4** To equip to handle industrial disputes with detailed knowledge of actual organization scenarios and long-term impact of resolutions of both employees and employer. **CO 5** To gain knowledge related to disciplinary action and domestic inquiry.

Course Code: HR–C–16 Industrial Relations

Course Credit: 4

Course Objective: The main objective is to introduce concept, system, and practices of Industrial Relations in Indian context and to make students understand major industrial Relations functions at various levels of organization and to develop their skill to analyze present and future trends in Industrial Relations practices. It also focuses on providing knowledge and skills necessary for HR managers to work competently in changing organizational and social environment.

Course Outcomes: CO 1 The successful completion of this course shall enable the student: To understand facets of interactions between the employer and the employees. In such relations whenever there is a clash of interest, it may result in dissatisfaction for either of the parties involved and hence lead to industrial disputes or conflicts. **CO 2** To develop a comprehensive perspective about the legal frame work stipulated under the Industrial Disputes Act, 1947. **CO 3** To imbibe how to interact, negotiate and transact with Trade Unions balancing and improving the relations between the employer and the employees. **CO 4** To understand the procedure of disciplinary actions as per the Industrial Employment (Standing Orders) Act, 1946.

Course Code: HR–C–17 Global Human Resource Management

Course Credit: 4

Course Objective: Global Human Resource Management has acquired a unique status and reputation in global economy. This course is designed to provide an understanding of the theoretical foundation and the practical implication of international approaches to human resource management.

Course Outcomes: The successful completion of this course shall enable the student: To know HRM issues in international contexts; issues related to host, home and third country nationals. To become aware about the Organizational Structure and international staffing, To understand the selection process,

expatriate management and repatriation, To understand the international training compensation and appraisal. To understand social security's scheme in different countries.

Course Code: HR–C–18 Human Development and Human Rights

Course Credit: 4

Course Objective: Basic objective is tounderstand historical growth of the idea of the human rights, to understand perspectives of human rights and human duties, Sensitize in international laws and Indian perspectives of human rights, demonstrate awareness about the millenionum development goals. To analyse and evaluate India's status in human development and various national and international agencies linked to human development.

Course Outcome: CO 1 Empowering students towards active citizenship, through understanding for human rights, fundamental freedom, gender equality, social justice. **CO 2** To gain understanding of India's status in human development and millennium developmental goals.

Course Code: HR– ECT– 01 HRD In Service Sector

Course Credit: 2

Course Objective: To understand the context and characteristics of the service sector relevant to HRD, the special role of HRD in the service sector and the types of HRD interventions relevant to service organizations.

Course Outcome: CO 1 To give a theoretical framework for budding HR professionals. To understand the importance of territory sector in developing human resources **CO 2** To equip future HR professionals industry ready with the required skill sets. **CO 3** To get an insight about competency building and development in service sector.

Course Code: HR– ECT– 02Law and Economics

Course Credit: 2

Course objective: To make students understand application of economic laws to the sector of jurisprudence while showing interaction between the science of law and economics i.e., how establishment of laws is essential to establishment of peaceful and prosperous economies.

Course outcome: CO 1 Learning of skills of carrying out an economic analysis of jurisprudence. **CO 2** Skills to understand how a peaceful society can be established which will result in human development.

Course Code: HR– ECT– 03 Designing Effective CSR Strategy

Course Credit: 2

Course Objective: The course will prepare the students how to implement CSR strategy design, and help in undertaking CSR projects which are core functions of CSR in any industry.

Course Outcome: CO 1 The students learn international framework on CSR and how to design strategy towards CSR and **CO 2** Develop and train the students for global CSR practices and international frameworks.

MA (HRD) SEMESTER - IV COURSE OBJECTIVE AND COURSE OUTCOME

Course Code: HR–C–19 Emerging Trends in HR

Course Credit: 4

Course Objective: To introduce latest development in HR areas.

Course Outcome: CO 1 Students learn and develop skill in current trends in HR: Employee Engagement, Emotional Intelligence, HR out sourcing, and Talent Management and HR Accounting.

Course Code:HR–C–20 Labour Legislation - II

Course Credit: 4

Course Objective: The objective is to enable the participants to familiarize themselves with important provisions of Industrial and labour laws which have substantial bearing on business decisions. Attempts will be made to give broad conceptual ideas of the laws taken for discussion, and to develop an insight into legal implications of the more important provisions.

Course Outcome: The successful completion of this course shall enable the student: **CO 1** To comprehend provident fund and compensation processes and manage simplified application thereof. **CO 2** To judge the actual organizational situations and implications thereof via case based learning and analytical abilities. **CO 3** To equip to handle social security legislations with detailed knowledge of actual organization scenarios and long-term impact of resolutions of both employees and employer.

Course Code: HR–C–21 Compensation Management

Course Credit: 4

Course Objective: To understand the conceptual foundations for wages, To appreciate various theories on wages, To evolve a compensation package for workers and executives.

Course Outcome: CO 1 Students learn Basic compensation management, wage determination. **CO 3** Theories of wages and methods of wage fixation.

Course Code: HR–C–22 Strategic Human Resource Management

Course Credit: 4

Course Objective: To impart knowledge related to the strategic issues surrounding people at the work front and to expose the students towards multidimensional competitive forces affecting HR decisions.

Course Outcomes: The successful completion of this course shall enable the student: **CO 1** To develop a perspective of strategic human resource management and be able to distinguish the strategic approach to human resources from the traditional functional approach. **CO 2** To understand the relationship of HR strategy with overall corporate strategy and craft effective functional strategies. **CO 3** To learn about the Human Capital management strategy **CO 4** To develop an understanding regarding High performance and Employee resourcing strategy.

Course Code: HR–C–23 Project Report

Course Credit: 4

Course Objective: The course work builds research attitude among the students. It is focused on developing the student skill in conceptualization, collection of data and analysis, interpretation of data in form of a report on issues related to the different aspects of human resource development studied in the four semesters. The student gets an opportunity to carry out and in-depth study on a particular topic related to the field. The students learn to defend its work in front ofexperts.

Course Outcome: CO 1 To undertake a problem centered study at a reputed organization on any of the HR topics learned, CO 2 To prepare a research report based on the collection, analysis and interpretation of the data and present the findings and suggestions CO 3 To test the level of practical knowledge gained out of completing the problem centered study CO 4 To check the level of knowledge on the various topics studied in human resources throughout the course.

Course Code: HR–ECT–01 Data Mining

Course Credit: 2

Course Objective: To understand data science, learning and classification and machine learning

Course Outcome: CO 1 Students learn how to do data analysis, learning and classification and regression tress and machine learning.

Course Code: HR–ECT–02 Total Quality Management

Course Credit: 2

Course Objective: This paper enables students to understand the principle concepts of TQM, focusing on quality planning, Models of TQM, customer satisfaction, Quality audits, SPC quality tools.

Course Outcome: CO 2 Students learn applying concepts of TQM and models of TQM in the field of TQM.

Course Code: HR–ECT–03 CSR Management and Sustainability Accounting

Course Credit: 2

Course Objective: This course aims to develop your understanding of key concepts and frameworks of cross sector collaboration. Corporate Responsibility and Accountability (CRA) examines how business manages its social, environmental and economic impact on society

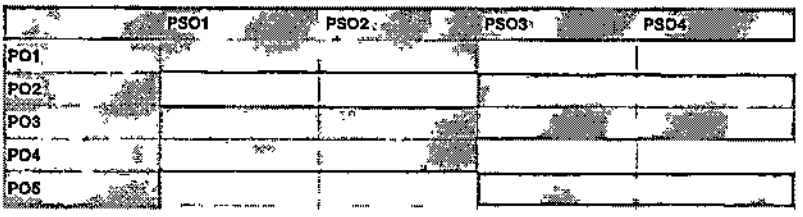
Course Outcome: CO 1 The students can learn the process of monitoring and evaluation on CSR and learn the various approaches of sustainability accounting, **CO 2** Strengthen the practical understanding on the planning, processing, and implementation of various mechanism of CSR.

DEPARTMENT OF HUMAN RESOURCE DEVELOPMENT

Veer Narmad South Gujarat University, Surat

Master of Arts in Human Resource Management & Labour Relations

	Master of Arts in Human Resource Management & Labour Relations
Abbreviation	MAHRM & LR
Duration	Two Years Full Time
Eligibility Criteria	Any Graduate with 45% marks in aggregate from a Recognized University. The minimum marks should be without rounding off.
Objective of the Programme	The Master of Arts in Human Resource Management (MAHRM&LR) designed to develop students into professionally competent and socially sensitive management graduates, fully equipped to take on the challenges of the corporate world. The programme explores the critical areas of contemporary human resources management, in conjunction with a comprehensive knowledge and understanding of the key functions of management and business. The broad objectives of this M.A. programme are to sensitize students to the social, political, economic, and ecological environments of the society; to enable students to become effective business leaders and decision-makers to contribute to organisational effectiveness; to facilitate the use of systems thinking among the students to evolve possibilities while addressing various personal and organisational challenges; to develop a global perspective among students to respond to global challenges; and to impart values of intellectual honesty, justice and fairness.
Programme Outcome	**PO1:-** To understand human resource issues and management trends in a competitive global economy as well as a broad spectrum of state and federal employment legislation. **PO2:-** To equip students with the tools necessary to effectively meet the challenges of an ever-changing business climate. **PO3:-** To inculcate specialized knowledge and skills required by managers who are responsible primarily of managing human resources and improving industrial relations **PO4:-** To develop a sound theoretical base in the domain of Human Resource Management. **PO5:-** To develop communication, interpersonal skills and leadership qualities to work in and with teams in organizations.

Programme Specific Outcome	**Programme Specific Outcomes (PSO)** **PSO1:-** Understand the basic concepts of Human resources management and its applications in the individual, team and organizational levels. **PSO2:-** Theoretical Knowledge in Human Resource Planning, Organization Development, Organizational Behavior, Labour Laws, Employee Engagement and Talent Management, Corporate Social Responsibility and Interdisciplinary Subjects. **PSO3:-** Practical knowledge and training in various areas of HR such a recruitment, selection, induction, communication, performance appraisal, etc **PSO4:-** Practical exposure to the real life organizational situations and opportunities of Human resources management through the practical project studies Internship and a Problem centered study.
Mapping Between Po's and PSO's	
Medium of Instruction	English

Programme StructureSemester – I

Course Code	Title	Teaching Per Week	Course Credits	University Examination		Internal Marks	Total Marks
				Duration	Marks		
HRM-C-01	Fundamentals of Psychology	4	4	3 Hrs	70	30	100
HRM-C-02	Applied Economics	4	4	3 Hrs	70	30	100
HRM-C-03	Principles of Management	4	4	3 Hrs	70	30	100
HRM-C-04	Human Resource Management - I	4	4	3 Hrs	70	30	100
HRM-C-05	Labour Laws - I	4	4	3 Hrs	70	30	100
HRM-C-06	Research Methodology & Labour Statistics	4	4	3 Hrs	70	30	100
	Any One from the following						
HRM-ECT-01	Business Communication	2	2	3 Hrs	70	30	100

HR-ECT-02	Management and Financial Accounting	2	2	3 Hrs	70	30	100
HRM-ECT-3	Computer Application	2	2	3 Hrs	70	30	100
	Total Credits		26				

Programme StructureSemester – II

Course Code	Title	Teaching Per Week	Course Credits	University Examination		Internal Marks	Total Marks
				Duration	Marks		
HRM-C-07	Organizational Psychology	4	4	3 Hrs	70	30	100
HRM-C-08	Labour Economics	4	4	3 Hrs	70	30	100
HRM-C-09	Social Processes &Behavioural Issues	4	4	3 Hrs	70	30	100
HRM-C-10	Industrial Relations	4	4	3 Hrs	70	30	100
HRM-C-11	Labour Laws - II	4	4	3 Hrs	70	30	100
HRM-C-12	Organisational Development	4	4	3 Hrs	70	30	100
	Any One from the following						
HRM-ECT-01	Knowledge Management	2	2	3 Hrs	70	30	100
HRM-ECT-02	Legal Framework Surrounding CSR	2	2	3 Hrs	70	30	100
HRM-ECT-03	Industrial Sociology	2	2	3 Hrs	70	30	100
	Total Credits		26				

Programme StructureSemester – III

Course Code	Title	Teaching Per Week	Course Credits	University Examination		Internal Marks	Total Marks
				Duration	Marks		

HRM-C-13	Labour Laws - III	4	4	3 Hrs	70	30	100
HRM-C-14	Economics of Human Resources	4	4	3 Hrs	70	30	100
HRM-C-15	Human Resource Development	4	4	3 Hrs	70	30	100
HRM-C-16	Business Laws	4	4	3 Hrs	70	30	100
HRM-C-17	Human Resource Management - II	4	4	3 Hrs	70	30	100
HRM-C-18	Human Development & Human Rights	4	4	3 Hrs	70	30	100
	Any One from the following						
HRM-ECT-01	HRD in Service Sector	2	2	3 Hrs	70	30	100
HRM-ECT-02	Industrial Safety	2	2	3 Hrs	70	30	100
HRM-ECT-03	Designing Effective CSR Strategy	2	2	3 Hrs	70	30	100
	Total Credits		26				

Programme StructureSemester – IV

Course Code	Title	Teaching Per Week	Course Credits	University Examination		Internal Marks	Total Marks
				Duration	Marks		
HR-C- 19	Employee Welfare and Social Security	4	4	3 Hrs	70	30	100
HR-C- 20	Compensation Management	4	4	3 Hrs	70	30	100
HR-C- 21	Strategic HRM	4	4	3 Hrs	70	30	100
HR-C- 22	International Human Resource Management	4	4	3 Hrs	70	30	100
HR-C- 23	Project Work	4	4	3 Hrs	70	30	100
	Any One from the following						
HR-ECT-01	Training and Development	2	2	3 Hrs	70	30	100

HR-ECT-02	Emerging Total Quality Management	2	2	3 Hrs	70	30	100
HR-ECT-03	CSR Management & Sustainability Accounting	2	2	3 Hrs	70	30	100
	Total Credits		22				

MA (HRM & LR) SEMESTER - I COURSE OBJECTIVE AND COURSE OUTCOME

Course Code: HRM–C–01 Fundamentals of Psychology

Total Credit: 4

Course Objective: The course provides an outline on basic concepts of psychology. It is designed to help students to understand patterns of human behavior in various circumstances. It also provides the students with the inputs related to the topics like learning, motivation, intelligence, personality etc.

Course Outcome: CO 1 Students will know the major concepts, perspectives, historical trends, empirical findings, research methods, and ethics in the field of psychology. **CO 2** Students will be able to demonstrate skills in research, communication, ethical behavior, complex cognitive processes, and professional development

Course Code: HRM – C – 02 Applied Economics

Total Credit: 4

Course Objective: This is an introductory course in economics, which introduces students to the principles, concepts, data and analytical frameworks that economists use to understand the world around us. Students develop an understanding of how the economy works and how individuals, firms and governments make decisions and interact with one another in markets and other environments. This course prepares Economics students for further study and focuses on their ability to communicate about real-world issues and public policy debates through the lens of economics.

Course Outcome: On successful completion of this course, students will be able **CO 1** to demonstrate a solid understanding of the core concepts and tools of economics. **CO 2** Relate basic economic theory and principles to current economic issues and evaluate related public economic policies. **CO 3** Apply economic principles and reasoning to solving business problems. **CO 4** Communicate their knowledge and understanding of economic issues using written, verbal and visual expression. **CO 5** Critically reflect on the broader social consequences of economic decision making.

Course Code: HRM-C-03 Principles of Management

Course Credit: 4

Course Objective: Knowledge on the principles of management is essential for all kinds of people in all kinds of organizations. After studying this course, students will be able to have a clear understanding of the managerial functions like planning, organizing, staffing, leading and controlling. Students will also gain some basic knowledge on international aspect of management.

Course Outcome: CO 1 To study about the concept and evolution of management, **CO 2** To know about the meaning and importance of planning, **CO 3** To understand the various forms of organisational structure and the concept of Staffing function, **CO 4** To understand the emerging trends and challenges in management, **CO 5** To study about various control techniques

Course Code: HRM-C-04 Human Resource Management – I

Course Credit: 4

Course Objective: To enable the students to understand the HR Management and system at various levels in general and in certain specific industries or organizations. 2. To help the students focus on and analyse the issues and strategies required to select and develop manpower resources 3. To develop relevant skills necessary for application in HR related issues 4. To enable the students to integrate the understanding of various HR concepts along with the domain concept in order to take correct business decisions.

Course Outcome: On completion of this course, the students will be able **CO1:** To develop the understanding of the concept of human resource management and to understand its relevance in organizations. **CO2:** To develop necessary skill set for application of various HR issues. **CO3:** To analyze the strategic issues and strategies required to select and develop manpower resources. **CO4:** To integrate the knowledge of HR concepts to take correct business decisions.

Course Code: HRM-C-05 Labour Laws – I

Course Credit: 4

Course Objective: To study constitutional provisions regarding labour. To study labour legislations pertaining to Industrial Relations.

Course Outcome: CO 1 Learning outcomes after going through various labour laws, students will be conversant regarding conflict management in legal perspective and **CO 2** Judicial system pertaining to labour management relations.

Course Code: HRM-C-06 Research Methodology & Labour Statistics

Course Credit: 4

Course Objective: This course will emphasize the importance and limitations of theory and methodology in social science research as well as the purpose of applied research, program evaluation, policy analysis, and research ethics. Following are the course objectives: Familiarity with various methods of conducting

empirical research. Familiarity with important research Statistical terms and concepts. Familiarity to assess the benefits of research applied to social sciences. Clarity of thinking in collection and interpretation of numerical data.

Course Outcome: **CO 1** To familiarize the participants with concepts and process of research **CO 2** To make the participants understand the application of research in business decision making **CO 3** To expose the participants to the tools and techniques in business research, **CO 4** To study about various measurement scales & preparation of research data, **CO 4** To learn about the format of business research, **CO 5** To study about various measurement scales & preparation of research data, and to learn about the format of Research Report.

Course Code: HRM-ECT-01 Business Communication

Course Credit: 2

Course Objective: To enable the students to become aware of their communication skills and sensitize them to their potential to become successful managers. To introduce them to some of the practices in managerial communication that are in vogue. To help them acquire some of the necessary skills to handle day-to-day managerial responsibilities, such as making speeches, controlling one-to-one communication, enriching group activities and processes, giving effective presentations, writing letters, memos, minutes.

Course Outcome: **CO 1** To equip the students with the necessary skills and techniques of communication to inform **CO 2** To inspire students and enlist their activity and willing cooperation in the performance of their jobs. **CO 3** It aims to make student aware about the importance, the role and the content of soft skills through instruction, knowledge acquisition, and practice **CO 4** To develop and nurture the soft skills that help develop student as a team member, leader, and all round professional. **CO 5** To learn about employment communication.

Course Code: HRM-ECT-02 Financial & Cost Accounting

Course Credit: 2

Course Objective: To help the students to develop cognizance of the importance of accounting in organization financial statements, To enable students to describe how people analyze the corporate financial under different conditions and understand why people describe the financial statements in different manner, To provide the students to analyze specific characteristics of Logistics Management Accounting and their future action for expenses and income, To enable students to synthesize related information and evaluate options for most logical and optimal solution such that they would be able to predict and control cost incurrence and improve results.

Course Outcome: **CO 1** Acquire conceptual knowledge of basics of accounting Identify events that need to be recorded in the accounting records **CO 2** Develop the skill of recording financial transactions and preparation of reports. **CO 3** Describe the role of accounting information and its limitations Equip with the knowledge of accounting process and preparation of final accounts of sole trader Identify and analyze the reasons for the difference between cash book and pass book balances **CO 4** Recognize circumstances

providing for increased exposure to errors and frauds Determine the useful life and value of the depreciable asset.

Course Code: HRM-ECT-03 Computer Application

Course Credit: 2

Course Objective: Objective is to understand basic concepts of Computer, Computer networks, Internetworks and cloud computing and providing basic understanding regarding application of Information Technology to various areas of management.

Course Outcome: CO 1 Students learn basic concepts of Computer, Computer networks, Internetworks and cloud computing and **CO 2** providing basic understanding regarding application of Information Technology to various areas of management.

MA (HRM & LR) SEMESTER - II COURSE OBJECTIVE AND COURSE OUTCOME

Course Code: HRM–C–07 Organisational Psychology

Course Credit:4

Course Objective: To train the students to carry our projects in the different areas of Industrial psychology, To make the students familiar with the psychological tests used for Industrial purposes, To impart the knowledge and skills for administering tests and writing their reports..

Course Outcome: CO 1 Articulate key ideas concerning industrial psychology including processes regarding staffing, job analysis, training and development. **CO 2** Articulate key ideas concerning organizational psychology including motivation, attitudes, stress, fairness, leadership, teams and work behavior. **CO 3** Discuss key ideas concerning attitudinal and behavioral manifestations of the work setting, including consideration of issues such as stress, diversity, emotional intelligence, and teamwork.

Course Code:HRM–C–08Labour Economics

Course Credit:4

Course Objective: To give an overview and understanding of the fundamental issues, insights, concepts and theories of labor economics, To learn the principles of wage determination and compensating wages, To analyze the major policy issues in labor economics. Such as the minimum wage, wage discrimination, and international competitiveness, To provide the student with a better understanding of the interrelationships between economics and human resource management.

Course Outcome: CO 1 The paper makes students aware of different theories on labour and employment from the point of view of economic research. **CO 2** It provides a detail analysis on the latest development of labour market in developing countries with reference to India **CO 3** The paper laid a special emphasis on informal sector and the problem of labour in India. .

Course Code: HRM–C–09 Social Processes and Behaviour Issues

Course Credit: 4

Course Objective: The objective of this paper is to familiarize the student with basic concepts and behavioral process in an organization to enable him to develop and adopt effective strategies, To familiarize the students about the concept of organizational behaviour and its applications

Course Outcome: CO 1 To understand the concept of Personality and Perception, **CO 2** To study the various theories governing leadership and motivation, **CO 3** To get an insight about group behavior, To know about the organisational conflict and management of conflict .

Course Code: HRM–C–10 Industrial Relations

Course Credit:4

Course Objective: The main objective is to introduce concept, system, and practices of Industrial Relations in Indian context and to make students understand major industrial Relations functions at various levels of organization and to develop their skill to analyze present and future trends in Industrial Relations practices. It also focuses on providing knowledge and skills necessary for HR managers to work competently in changing organizational and social environment.

Course Outcomes: The successful completion of this course shall enable the student: **CO 1** To understand facets of interactions between the employer and the employees. **CO 2** In such relations whenever there is a clash of interest, it may result in dissatisfaction for either of the parties involved and hence lead to industrial disputes or conflicts. **CO 3** To develop a comprehensive perspective about the legal frame work stipulated under the Industrial Disputes Act, 1947. **CO 4** To imbibe how to interact, negotiate and transact with Trade Unions balancing and improving the relations between the employer and the employees. **CO 5** To understand the procedure of disciplinary actions as per the Industrial Employment (Standing Orders) Act, 1946.

Course Code:HRM–C–11 Labour Laws II
Course Credit:4

Course Objective: The objective is to enable the participants to familiarize themselves with important provisions of Industrial and labour laws which have substantial bearing on business decisions. Attempts will be made a) to give broad conceptual ideas of the laws taken for discussion, and b) to develop an insight into legal implications of their more important provisions.

Course Outcomes: The successful completion of this course shall enable the student: **CO 1** To comprehend pensions and provident fund processes and manage simplified application thereof. **CO 2** To enable employment in departments of pension, provident fund, state insurance of organizations or compliance departments of factories. **CO 3** To judge the actual organizational situations and implications thereof via case based learning and analytical abilities. **CO 4** To equip to handle industrial disputes with detailed knowledge of actual organization scenarios and long-term impact of resolutions of both employees and employer. **CO 5** To gain knowledge related to disciplinary action and domestic inquiry.

Course Code: HRM–C–12 Organisational Development

Course Credit:4

Course Objective: To understand the nature of the developmental process in organizations. To comprehend the main derives and approaches of the change, To realize and apply the stages of the organizational development process, To equip students with knowledge & skills required for effective change and organizational development, To Provide students with knowledge of resistance to change and techniques of handing it

Course Outcome: CO 1 Gaining knowledge about organizational development process, **CO 2** How to change and develop organizations, Better understanding of the change management model, **CO 3** Skills needed to develop an action plan for the development process, Better understanding of change resistance and how to handle it.

Course Code: HRM-ECT-01 Knowledge Management

Course Credit: 2

Course Objective: The objective of this course is to prepare students to understand the current theories, practices, tools and techniques in knowledge management (KM) to deal with the challenges with the organization and management of knowledge.

Course Outcome: CO 1 Students will learn context and concept of Knowledge Management, practices for knowledge management and knowledge management technologies, **CO 2** Students learn how to share knowledge and transfer knowledge. **CO 3** They learn how to do knowledge management audit.

Course Code: HR-ECT-02 Legal Framework Surrounding CSR

Course Credit: 2

Course Objective: focuses on providing theoretical knowledge and practical exposure on Corporate Social Responsibilities of the corporate sector towards society and the environment.

Course Outcome: CO 1 In this subject, the students learn practical applicability and guidance under Companies Act 2013 which mandates CSR spends in Indian corporate. **CO 2** Creating awareness and develop important legal knowledge and its applicability which is mandated in the companies.

Course Code: HRM-ECT-03 Industrial Sociology

Course Credit: 2
Course Objective: The course provides an opportunity to the student to understand the social dimension of the industry. This course is designed to make the students understand the process of group formation, human relations approach and the dynamics of Industrial Society

Course Outcome: CO 1 Through sociology courses, even introductory courses, students learn a variety of sociology-related skills, including understanding how human behavior affects culture. **CO 2** These

skills can help students as they come to understand the individuals they study and work with in research or in their daily lives

MA (HRM & LR) SEMESTER - III COURSE OBJECTIVE AND COURSE OUTCOME

Course Code: HRM-C-13 Labour Laws - III

Course Credit: 4

Course Objective: The objective is to enable the participants to familiarize themselves with important provisions of Industrial and labour laws which have substantial bearing on business decisions. Attempts will be made a) to give broad conceptual ideas of the laws taken for discussion, and) to develop an insight into legal implications of the more important provisions.

Course Outcomes: The successful completion of this course shall enable the student: To comprehend Employee State Insurance, Employment Standing order Act, and Social Security's provisions processes and manage simplified application thereof. To judge the actual organizational situations and implications thereof via case based learning and analytical abilities.

Course Code: HRM-C-14 Economics of Human Resources

Course Credit: 4

Course objective: To make students understand application of the laws of economic science to themost important social sectors of education, training, health and environment so that they understand how these sectors contribute in the development of organization's and broadly country's human capital and contribute in the growth and development process.

Course outcome: CO 1 Learning of skills of carrying out an economic analysis of education, training, health and environment.

Course Code: HRM-C-15 Human Resource Development

Course Credit: 4

Course Objective: To help students to develop HRD facilitator skills and develop understanding of various HRD systems and processes, To help students clear concept and processes of HRD functions.

Course Outcome: CO 1 To provide the students a synthesized framework theory and practice, **CO 2** To impart fundamentals of HRD practices in organizations, Principles and Designing HRD Systems, **CO 3** To study the role performed by Line manager and HRD professional, **CO 4** To study the HRD climate, **CO 5** To study the importance of HRD Audit and Performance Management.

Course Code: HRM-C-16 Business Laws

Course Credit: 4

Course Objective: Thiscourseaimsatmakingthestudentunderstandthelegalaspectsofbusiness.Italso aims at making students aware of the functioning of legal system with reference to business and familiarizes them with the latest amendments in various business laws

Course Outcome: CO 1 To provide a basic understanding to the students about the relevant provisions of various laws, **CO 2** To familiarize the students various laws, which are to be observed in performing the day -to-day business, **CO 3** To study about the formation, incorporation and working of a company, **CO 4** To know about different latest provisions of the law relating to negotiable instruments

Course Code: HRM-C-17 Human Resource Management – II

Course Credit: 4

Course Objective: To enable the students to understand the HR Management and system at various levels in general and in certain specific industries or organizations. 2. To help the students focus on and analyse the issues and strategies required to select and develop manpower resources 3. To develop relevant skills necessary for application in HR related issues 4. To enable the students to integrate the understanding of various HR concepts along with the domain concept in order to take correct business decisions.

Course Outcome: On completion of this course, the students will be able **CO1:** To develop the understanding of the concept of human resource management and to understand its relevance in organizations. **CO2:** To develop necessary skill set for application of various HR issues. **CO3:** To analyze the strategic issues and strategies required to select and develop manpower resources. **CO4:** To integrate the knowledge of HR concepts to take correct business decisions.

Course Code:HRM-C-18 Human Development & Human Rights

Course Credit: 4

Course Objective: Basic objective is to understand historical growth of the idea of the human rights, to understand perspectives of human rights and human duties, Sensitize in international laws and Indian perspectives of human rights, demonstrate awareness about the millenionum development goals. To analyse and evaluate India's status in human development and various national and international agencies linked to human development.

Course Outcome: CO 1 Empowering students towards active citizenship, through understanding for human rights, fundamental freedom, gender equality, social justice. **CO 2** To gain understanding of India's status in human development and millennium developmental goals.

Course Code: HRM-ECT-01 Human Resource Development in Service Sector

Course Credit: 2

Course Objective: To understand the context and characteristics of the service sector relevant to HRD, the special role of HRD in the service sector and the types of HRD interventions relevant to service organizations.

Course Outcome: CO 1 To give a theoretical framework for budding HR professionals. **CO 2** To understand the importance of territory sector in developing human resources **CO 3** To equip future HR professionals industry ready with the required skill sets. **CO 4** To get an insight about competency building and development in service sector.

Course Code: HRM-ECT-02Industrial Safety

Course Credit: 2

Course Objective: To know about Industrial safety concepts and legal, humanistic, economic and social considerations, Safety management and health and environment safety and legal measures.

Course Outcome: CO 1 Students learn concept, principles and practices of Industrial Safety, **CO 2** To learn role of management, Union, employee in safety, **CO 3** To learn issues related to health and environment and statutory provisions related to Industrial Safety.

Course Code: HRM-ECT-03Designing Effective CSR Strategy

Course Credit: 2

Course Objective: The course will prepare the students how to implement CSR strategy design, and help in undertaking CSR projects which are core functions of CSR in any industry.

Course Outcome: CO 1 The students learn international framework on CSR and how to design strategy towards CSR and **CO 2** Develop and train the students for global CSR practices and international frameworks.

MA (HRM & LR) SEMESTER - IV COURSE OBJECTIVE AND COURSE OUTCOME

Course Code: HRM-C-19 Employee Welfare and Social Security

Course Credit: 4

Course Objective: To acquaint the student with labour welfare concept & Agencies. 2. To understand the statutory and non-statutory welfare program. 3. To make out difference causes of Accident & preventive steps, To acquaint students with social security concept scope and approaches.

Course Outcome: Students learn their idea about the welfare concept. Students learn different types of labour welfare programmers. Students would have grasped the major theme of Accident & occupational Diseases. Students learn concept, scope approaches of social security and understand the concepts of labour administration of state & central levels.

Course Code: HRM-C-20 Compensation Management

Course Credit: 4

Course Objective: To understand the conceptual foundations for wages, to appreciate various theories on wages, To evolve a compensation package for workers and executives.

Course Outcome: CO 1 Student learns Basic compensation management, wage determination. **CO 2** Theories of wages and methods of wage fixation.

Course Code: HRM-C-21 Strategic Human Resource Management

Course Credit: 4

Course Objective: To impart knowledge related to the strategic issues surrounding people at the work front and to expose the students towards multidimensional competitive forces affecting HR decisions.

Course Outcomes: The successful completion of this course shall enable the student: **CO 1** To develop a perspective of strategic human resource management and be able to distinguish the strategic approach to human resources from the traditional functional approach. **CO 2** To understand the relationship of HR strategy with overall corporate strategy and craft effective functional strategies. **CO 3** To learn about the Human Capital management strategy **CO 4** To develop an understanding regarding High performance and Employee resourcing strategy.

Course Code: HRM-C-22 International Human Resource Management

Course Credit: 4

Course Objective: International Human Resource Management has acquired a unique status and reputation in global economy. This course is designed to provide an understanding of the theoretical foundation and the practical implication of international approaches to human resource management.

Course Outcomes: The successful completion of this course shall enable the student: **CO 1** To know HRM issues in international contexts; issues related to host, home and third country nationals. **CO 2** To become aware about the Organizational Structure and international staffing. **CO 3** To understand the selection process, expatriate management and repatriation. **CO 4** To understand the international training, compensation and appraisal. **CO 5** To understand social security's scheme in different countries.

Course Code: HRM-C-23 Project Work

Course Credit: 4

Course Objective: The course work builds research attitude among the students. It is focused on developing the student skill in conceptualization, collection of data and analysis, interpretation of data in form of a report on issues related to the different aspects of human resource development studied in the four semesters. The students gets an opportunity to carry out and in-depth study on a particular topic related to the field. The students learn to defend its work in front ofexperts.

Course Outcome: **CO 1** To undertake a problem centered study at a reputed organization on any of the HR topics learned, **CO 2** To prepare a research report based on the collection, analysis and interpretation of the data and present the findings and suggestions **CO 3** To test the level of practical knowledge gained out of completing the problem centered study **CO 4** To check the level of knowledge on the various topics studied in human resources throughout the course.

Course Code: LW-ECT-01 Training and Development

Course Credit: 4

Course Objective: Objective is to introduce students to understand Training and Development concept and process

Course Outcomes: **CO 1** Students will learn concept, how to set objectives, how to identify training needs, **CO 2** how to design and implement training and how to evaluate training activities by using evaluation models.

Course Code: LW-ECT-02 Emerging Trends in HRM
Course Credit: 4

Course Objective: To introduce latest development in HR areas.

Course Outcome: CO 1 Students learn and develop skill in current trends in HR: Diversity in Management, Knowledge Management, Emotional Intelligence, creativity and innovation and organization citizenship behaviour.

Course Code: LW–ECT–03 CSR Management and Sustainability Accounting

Course Credit: 2

Course Objective: This course aims to develop your understanding of key concepts and frameworks of cross sector collaboration. Corporate Responsibility and Accountability (CRA) examines how business manages its social, environmental and economic impact on society

Course Outcome: CO 1 The students can learn the process of monitoring and evaluation on CSR and learn the various approaches of sustainability accounting. **CO 2** Strengthen the practical understanding on the planning, processing, and implementation of various mechanism of CSR.

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ઠરાવ નં.....2.....વિદ્યાશાખા/પરિશિષ્ટ.....9.6

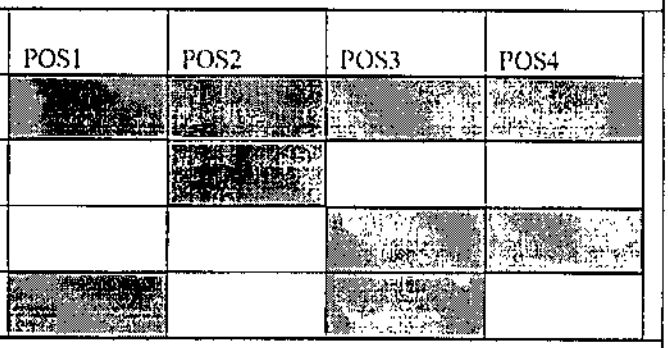
Department of Human Resource Development

Veer Narmad South Gujarat University, Surat

Post Graduate Diploma in Research Methodology

Programme StructureSemester – I

	Post Graduate Diploma in Research Methodology
Abbreviation	PGDRM
Duration	One Years Regular and External
Eligibility Criteria	Any Graduate with 45% marks in aggregate from a Recognized University. The minimum marks should be without rounding off.
Objective of the Programme	Focusing on advanced concepts of research methodology, the course aims at developing in prospective professional researchers the requisite skills for pursuing the most appropriate methodologies for research studies. A good research needs not merely conceptual capabilities, but also a thorough command of methodological strategies and techniques, including basic knowledge of computers and statistical packages. Sound expertise and versatility in research methodology enable a researcher to undertake, with confidence, research on different issues and problems, which require highly specific designs and techniques. The course is designed to impart research skills to beginners and help improve the quality of research by existing researchers.
Programme Outcome	**PO1:-**To identify and discuss the role and importance of research in the social sciences. **PO2:-**To identify and discuss the issues and concepts salient to the research process. **PO3:-**To identify and discuss the complex issues inherent in selecting a research problem, selecting an appropriate research design, and implementing a research project. **PO4:-**To identify and discuss the concepts and procedures of sampling, data collection, analysis and reporting.
Programme Specific Outcome	**Programme Specific Outcomes (PSO)** PSO1:- Demonstrate the ability to choose methods appropriate to research aims and objectives PSO2:- Understand the limitations of particular research methods PSO3:- Develop skills in qualitative and quantitative data analysis and presentation

	PSO4:- Demonstrate enhanced research writing skills
Mapping Between Po's and PSO's	
Medium of Instruction	English

Course Code	Title	Teaching Per Week	Course Credits	University Examination		Internal Marks	Total Marks
				Duration	Marks		
101	Research Process and Philosophical Foundations	4	4	3 Hrs	70	30	100
102	Statistical methods	4	4	3 Hrs	70	30	100
103	Survey Research	4	4	3 Hrs	70	30	100
104	Qualitative Research	4	4	3 Hrs	70	30	100
10561	Indian Statistics	4	4	3 Hrs	70	30	100
	Total Credits		26				

Programme StructureSemester – II

Course Code	Title	Teaching Per Week	Course Credits	Total Marks
HR-C-07	Project Report		8	200
HR-C-08	Viva	4	4	100
	Total Credits		26	300

Name of Program	**Post Graduate Diploma in Corporate Social Responsibility (CSR)**
Abbreviation	PGDCSR
Duration	One Year
Eligibility Criteria	Graduate from any UGC recognized University
Objective of Program	The one-year Post Graduate Diploma in Corporate Social Responsibility (CSR) focuses on providing theoretical knowledge and practical exposure on Corporate Social Responsibilities of the corporate sector towards society and the environment. The course will prepare the students how to implement CSR legal guidelines, strategy design, and help in undertaking CSR projects which are core functions of CSR in any industry.
Program Outcome (Subject wise)	PO1:Corporate Social Responsibility This subject educates and prepare with fundamental knowledge of CSR, understanding the core concepts and its utility
	PO2: Legal Framework surrounding CSR In this subject, the students learn practical applicability and guidance under Companies Act 2013 which mandates CSR spends in Indian corporates
	PO3: Designing Effective CSR Strategy The students learn international framework on CSR and how to design strategy towards CSR
	PO4: CSR Management and Sustainability Accounting The students can learn the process of monitoring and evaluation on CSR and learn the various approaches of sustainability accounting
	PO5: CSR: Business Model for Development The subject provides insight of few case-study of Public sector and Private sector companies which are actively involved to impart CSR activities
	PO6: Social Research The subject teaches the students on the basic concept of Research Methodology and its utility in the course.
Program Specific Outcomes (Subject wise)	PSO1: Corporate Social Responsibility Impartingtheoretical and practical knowledge on CSR that are required in the career of CSR
	PSO2: Legal Framework surrounding CSR Creating awareness and develop importantlegal knowledge and its applicability which is mandated in the companies
	PSO3: Designing Effective CSR Strategy Develop and train the students for global CSR practices and international frameworks

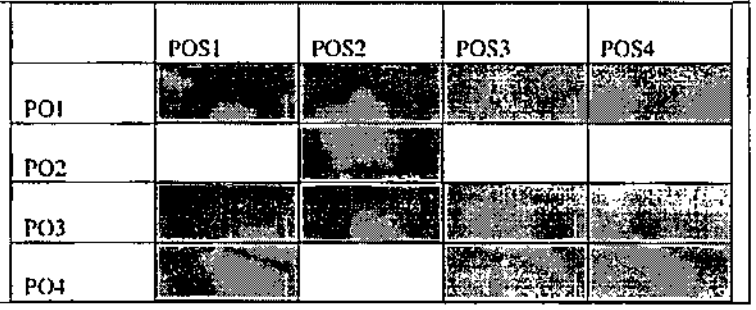
		PSO4: CSR Management and Sustainability Accounting Strengthen the practical understanding on the planning, processing, and implementation of various mechanism of CSR						
		PSO5: CSR: Business Model for Development Case study, real example of companies on how to undertake CSR projects train the students to understand real challenges and its solutions						
		PSO6: Social Research Develop the interest on research which helps the student to do internship project and future professional career						
Mapping between POs and PSOs								
Medium of Instruction		English						
Program Structure		Semester 1						
Paper Code	Title	Teaching per week		Course Credit	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
PGDCSR-01	Corporate Social Responsibility	4	0	4	3hrs	70	30	100
PGDCSR-02	Legal Framework surrounding CSR	4	0	4	3hrs	70	30	100
PGDCSR-03	Designing Effective CSR Strategy	4	0	4	3hrs	70	30	100
PGDCSR-04	CSR Management and Sustainability Accounting	4	0	4	3hrs	70	30	100
PGDCSR-05	CSR: Business Model for Development	4	0	4	3hrs	70	30	100
PGDCSR-06	Social Research	4	0	4	3hrs	70	30	100
	Total	24	0	24				
Program Structure		Semester 2						
PGDCSR-07	Industry Internship	Course Credit		Duration				
		8		One month				

Department of Human Resource Development

Veer Narmad South Gujarat University, Surat

Post Graduate Diploma in Human Resource Management

Programme Structure Semester – I

	Post Graduate Diploma in Human Resource Management
Abbreviation	PGHRM
Duration	One Years Regular and External
Eligibility Criteria	Any Graduate with 45% marks in aggregate from a Recognized University. The minimum marks should be without rounding off.
Objective of the Programme	To advocate top notch human resource development practices and prepare future leaders who demonstrate the skills of life long learning and facilitate self, organization and society's growth.
Programme Outcome	• **PO1:-** Know the implications of Human Resource Development in organizations • **PO2:-** To familiarize about different aspects of managing people in the organizations from stage of acquisition to retention. • **PO3:-** To have understanding of Industrial Relations and Labor Legislation. • **PO4:-** To communicate effectively in variety of formats of representing HR issues through project.
Programme Specific Outcome(PSO)	• PSO1:- Students would be able to manage and develop people in organizations • PSO2:- Students would be able to have clear understanding of Talent Management process • PSO3:- Students would be able to show leadership skills to enhance the performance Human Resources in an organization. • PSO4:- Students would be able to help organizations to make it efficient and effective.
Mapping Between Po's and PSO's	

Medium of Instruction	English

Course Code	Title	Teaching Per Week	Course Credits	University Examination		Internal Marks	Total Marks
				Duration	Marks		
PGDHRM-01:	Human Resource Management	4	4	3 Hrs	70	30	100
PGDHRM-02:	Organizational Behaviour	4	4	3 Hrs	70	30	100
PGDHRM-03:	Organizational Development	4	4	3 Hrs	70	30	100
PGDHRM-04:	Labour Law	4	4	3 Hrs	70	30	100
PGDHRM-05:	Industrial Relations	4	4	3 Hrs	70	30	100
	Total Credits		20				

Programme Structure Semester – II

Course Code	Title	Course Credits	Total Marks
PGDHRM-06	Project Report	4	100
PGDHRM-07	Viva-voce	4	100
	Total Credits	8	200

Program Outcome, Program Specific Outcome & Course Outcome

Program Name: Post Graduate Diploma in Human Resource Management

Program Outcome:

- To know the implications of Human Resource Development in organizations
- To familiarize about different aspects of managing people in the organizations from stage of acquisition to retention.
- To have understanding of Industrial Relations and Labor Legislation.
- To communicate effectively in variety of formats of representing HR issues through project.

Program Specific Outcome:

- Students would be able to manage and develop people in organizations
- Students would be able to have clear understanding of Talent Management process
- Students would be able to show leadership skills to enhance the performance Human Resources in an organization.
- Students would be able to help organizations to make it efficient and effective.

Course Outcome (Subject wise):

Semester: I		
No.	Course (subject) Code	PGDHRM-01
	Subject Title	Human Resource Management
	Subject Outcome	The subject will allow students with little or no prior knowledge of a working Personnel Management function to understand the methods and techniques of the discipline and to allow the students to move into a greater analysis of the specialize functions.

Semester: I		
No.	Course (subject) Code	PGDHRM-02
	Subject Title	Organizational Behavior
	Subject Outcome	The objective of this paper is to familiarize the students with basic behavioral process in the organization. The main objective of Organizational Behavior is to understand the human interactions in an organization, find what is driving it and influence it for getting better results in attaining business goals.

Semester: I		
No.	Course (subject) Code	PGDHRM-03
	Subject Title	Organizational Development
	Subject Outcome	The main objective is to acquaint the students with the theoretical aspects of organizational change and development and to develop the skill of applying the knowledge acquired to the practical problems of the change mechanism in an organization. It also aims at enabling them to take up research in the same field if necessary.

Semester: I		
No.	Course (subject) Code	PGDHRM-04
	Subject Title	Labour Law
	Subject Outcome	The present course aims at familiarizing the participants with various legal aspects of labor laws. It aims at providing a rich fund of contemporary knowledge, time tested principles, basic concepts, emerging ideas, ever changing procedures & practices in the field of labor Law.

Semester: I		
No.	Course (subject) Code	PGDHRM-05
	Subject Title	Industrial Relations
	Subject Outcome	The main objective is to introduce concept, system, and practices of Industrial Relations in Indian context and to make students understand major industrial Relations functions at various levels of organization and to develop their skill to analyze present and future trends in Industrial Relations practices. It also focuses on providing knowledge and skills necessary for HR managers to work competently in changing organizational and social environment.

Semester: II		
No.	Course (subject) Code	PGDHRM-06-07
	Subject Title	Project Report
	Subject Outcome	The main objective of project work is to apply the theoretical and conceptual thoughts of research methodology in real life with selected topic of research.

M.A. SOCIOLOGY SEMESTER- I			
Sr. No.	**Course**	**Course Outcome**	**Outcome of Employability/Entrepreneurship/ Skill**
1.	Core Course-I Classical Sociological Tradition- I	The present course aims at acquainting the students with classical contributions from the pioneers of Sociology to provide a systematic knowledge. • The students will be able to understand the fundamentals of Sociology and their contributions. • The course also helps to provide theoretical as well as methodological inputs to the learners. • The course enriches the sociological understandings of the students.	The knowledge of classical sociology will enhance the analytical skills to understand existing situations at various levels of social phenomenon. In-depth understanding of classical will enable to understand ground realties that will be helpful to carry out field work in growing areas of various field based work of governmental and non-governmental organizations.
2.	Core Course-II Methodology of Social Research- I	The course aims at providing enhanced understanding of the fundamentals of social research and its techniques. While offering the course emphasis shall be given to develop skills and critical outlook of the student for a systematic comprehension to understand social phenomena. The paper focuses on preparing appropriate analytical skills to undertake research activities. • The students will be trained to deal the qualitative and quantitative data collected from the field. • And emphasis will be given to relevant statistical techniques to analyse and interpret the data in a meaningful way.	The research exposure of the course will have ample scope to get employment in various data analysis organizations. Also it will provide skills and craftsmanship to the students to undertake research projects independently.
3.	Core Course- III Sociology of Change & Development- I	Social change and transformation is a continuous processes of the society, thus it is imperative to understand the causes and consequences of society at various spans. • The course will make the students to understand these processes in depth. • Also, the students will get exposure to conceptualise and theorise the processes of social change.	There are many areas where society needs to understand undercurrents of social change namely: patterns of voting, changes in consumption patterns which are changing rapidly. The course provides an understanding such processes scientifically.

4.	Elective Course-IV (A) Environment and Society	The course aims to provide exposure related to the social aspects of environment and society and their interfaces. The course will enhance knowledge in environmental concerns and its impacts on humans. • The course raises contemporary issues related to environment. • Also, it will address concerns of environment degradation at national and international level.	The course will provide opportunity to young social scientists for the organizations involved in working with upgradation of environmental conditions.
5.	Elective Course- IV (B) Globalization and Society	The process of globalization has impacted social, cultural and economic aspects of every society. The rapidity/gravity of globalization has attracted attention of social scientists to understand the issues and undercurrents. • The understanding of dynamic nature of globalization will motivate to stake holder to analyse its complexity at local and global levels. • Special attention will be made to articulate with culture and changing patterns of global communication	In-depth understanding of globalization will enable to develop entrepreneurism in stake holders.
6.	Interdisciplinary Course- V Sociology of Social Movements in India	Social movements have played significant role in the process of social change and transformation throughout whole span of human society. • The course will provide an exposure to understand various social movements and their contribution in changing human lives. • To inculcate the ideologies and various components of Social movements.	The understanding of social movements will create scope of employment opportunities in various organizations. Students will learn theoretical knowledge on social movements and develop their skills.

M.A. SOCIOLOGY SEMESTER- II			
1.	Core Course- VII Classical Sociological Tradition- II	The present course aims at acquainting the students with classical contributions from the pioneers of Sociology to provide a systematic knowledge. • The students will be able to understand the fundamentals of Sociology and their contributions. • The course also helps to provide theoretical as well as methodological inputs to the learners. • The course enriches the sociological understandings of the students.	The knowledge of classical sociology will enhance the analytical skills to understand existing situations at various levels of social phenomenon. In-depth understanding of classical will enable to understand ground realties that will be helpful to carry out field work in growing areas of various field based work of governmental and non-governmental organizations.
2.	Core Course- VIII Methodology of Social Research- II	The course aims at providing enhanced understanding of the fundamental of the social research and its techniques. • The student will be equipped with the qualitative and quantitative data collected from the field. • Emphasis is given to relevant statistical techniques for collection, classification and analysis of data.	The course will make students skilful to look into social phenomena occurring in the society. Skills and critical outlook of the students will provide opportunities for working with organizations involved in systematic and comprehensive analysis of social events.
3.	Core Course- IX Sociology of Change & Development- II	Development has emerged as a central concern for sociologist as well as planners in our country as well. • The course is designed: to provide conceptual and theoretical clarity on social structure & impinges on developmentwith a special reference to Indian experiences. • The course will enable students to understand the processes and phases of development over a period of time as well as students will get understanding about the impact of various developmental programmes launched by the state and organizations.	The course develops skills and employability among the students for professional careers in the area of development and planning.

4.	Elective Course- X (A) Sociology of Health	The aim of the course is to make students aware about the relationship between health and social institutions, social medicine and structure of hospital organizations. • The existing high tech and cost in primary health carefacilities hinder the operations of hospitals in many parts of the country that needs to be understood from social science perspective, the course will provide students to understand the status of health. • The course will develop insights among the students to understand wellbeing in the society.	The course provides opportunities for students to get employment in health sectors to work as supporters.
5.	Elective Course- X (B) Rural Society in India	The government of India pays much attention to develop rural society to fulfil the gap between rural and urban societies. • The course is aimed to make students trained to understand nature of villages and different rural social organizations and institutions. • The course will develop knowledge to look into rural dynamics in different rural social lives.	In India the rural society is still dominating numerically, hence, the understanding of rural organizations will provide space to work for rural development.
6.	Interdisciplinary Course- XI Political Sociology	Political system is the most dominant component of social structure. • To acquaint the students with the nature and functioning of political systems and the political processes. • The awareness of political system and processes will makethe students aware about the status, role, democratic rights and duties of Indian citizens.	The knowledge of political sociology will make students to lead their respective society in various political processes.

M.A. SOCIOLOGY SEMESTER- III			
1.	Core Course-XIII Theoretical Perspectives in Sociology- I	This course is intended to introduce the substantive, theoretical and methodological issues which have contributed in shaping the sociological inclination in the later half of the 20th century and have been extended by the practitioners of the sociology. • The students will get foundation where they can articulate with theory and empirical data. • It will help in modification and ramification the theory according to existing social condition.	Knowledge of theory will enhance skill among the students to look into the social phenomena scientifically.
2.	Core Course-XIV Perspectives and Themes onIndian Society- I	The course is designed to develop comprehensive understanding of Indian society. • The course will sensitize the students on diverse nature of Indian society at different time duration. • The course will develop understanding among the students to analyse Indian society from different theoretical perspectives at macro and micro levels.	Since Indian society represents diverse nature and culture, the course will provide skills for hair split analysis of Indian society among the students.
3.	Core Course- XV Sociology of Tribal India- I	The tribal folk and culture constitutes a significant segment of Indian society. • The aim of thecourse is to provide a comprehensive understanding of tribal's society in terms of their socio and geo-demographic structure of India with special reference to Gujarat. • The course inculcates vast knowledge to understand the tribal society and culture from their own as well as from sociological perspective as the students of this department belong largely(more than 95%) the tribal community.	It is imperative to understand sociologically the tribal society as many national and international organization have been working for the development of the tribal people. The course will provide skill to understand scientifically about the nature of tribal folk and culture as well as it will provide job opportunities to such working organizations.

4.	Elective Course-XVI (A) Population and Society	The course aims to understand the population and its implication at various levels of Indian society with articulation of theoretical and conceptual knowledge. • Students will learn structure, system and relationships with demography at various variables. • Students will learn pros and cons of population growth with special reference to its impact on environment.	Since Indian population is fluctuating largely, it is significant to understand the demography in-depth. The course will develop skill among the student to understand demographic dividend which has significant role in development. The students have better chances to get employment in the organizations working for the settlements and welfare of slum areas developing almost in every city.
5.	Elective Course-XVI (B) Industry and Society in India	The course is designed to impart knowledge on complexity of industrial society from sociological perspectives. • The students will get knowledge about industrialization process, work transformation, nature of industrial towns and cities with special reference to industrial organization, personnel management practices.	Since the south Gujarat region of the state has developed as largest industrial hub of South Asia. The content of course has potentiality to develop skills and employability among the students to work with and for the industrial organization.
6.	Interdisciplinary Course-XVII Women's Studies	The course is constructed to create awareness about gender sensitivity, status and role of woman in society. • The students will get theoretical knowledge to build their perception about the gender constructions, socio-cultural discrimination and efforts to eradicate themat various levels.	The knowledge of the course will make students to work with women and get employability in organizations engaged for the welfare of the women.

M.A. SOCIOLOGY SEMESTER- IV			
1.	Core Course- XIX Theoretical Perspectives in Sociology- II	This course is intended to introduce the substantive, theoretical and methodological issues which have contributed in shaping the sociological inclination in the later half of the 20th century and have been extended by the practitioners of the sociology. • The students will get foundation where they can articulate with theory and empirical data. • It will help in modification and ramification the theory according to existing social condition.	Knowledge of theory will enhance skill among the students to look into the social phenomena scientifically.
2.	Core Course - XX Perspectives and Themes of Indian Society- II	The course is designed to develop comprehensive understanding of Indian society. • The course will sensitize the students on diverse nature of Indian society at different time duration. • The course will develop understanding among the students about the processes of social change over a period of time. • The course sensitizes students to understand the issues related to the ethnicity and nation building.	Since Indian society represents diverse nature and culture, the course will provide skills for hair split analysis of Indian society among the students.
3.	Core Course- XXI Sociology of Tribal India- II	The aim of the course is to provide a comprehensive understanding of tribal institutions, the role of missionaries and various social organizations working for the welfare of tribal community. • The course inculcates vast knowledge to understand the tribal institutions and efforts of governmental and non-governmental organizations working for tribal society.	It is imperative to understand sociologically the tribal society as many national and international organization have been working for the development of the tribal people. The course will provide skill to understand scientifically about the structure of tribal institutions. And impacts of various welfare schemes on their social and economic lives.

			The knowledge will provide employability among the students to work with GOs and NGOs engaged in tribal welfare.
4.	Elective Course-XXII (A) Sociology of Education	The Course is designed to contextualizeeducation within the discipline of Sociology. • The course extends basic knowledge of Sociological concepts and theories of education.	It provides skills to work in formal and informal organizations.
5.	Elective Course-XXII (B) Urban Society in India	The course is designed with a view to understand urban society, with special attention to rural urban continuum. • The course provides comprehensive knowledge of various schools of urban sociology and processes of urbanization.	The knowledge of urban sociology will make students skillful about urban society. This will provide employability to work with formal and informal organization working in the area of urban development.
6.	Interdisciplinary Course - XXIII Sociology of Social Work	The course is constructed to provide exposure of social work in the field of sociology. • The course will provide knowledge about various social problems occurring in society time to time. • The knowledge will help the students to tackle the situation with professionalism.	The students are exposed about the e relevance sociology in social work through the contribution of various groups involved in social work and its corresponding reciprocation. This professionalism will provide employability, to work in many social organizations.

એકેડેમિક કાઉન્સિલ તા.05/02/2022
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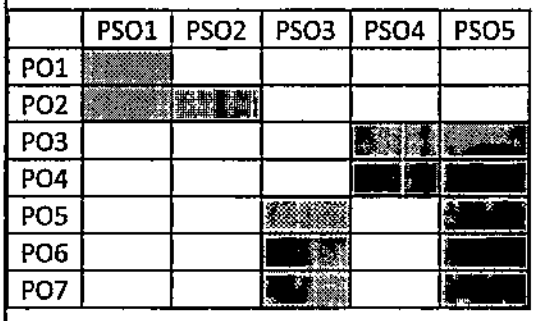
Master of Science (Information Technology)

Name of Program	**Master of Science (Information Technology)**
Abbreviation	**M.Sc. (I.T.)**
Duration	**5 Years Integrated Course** **B.Sc.(I. T.) – 3 years – Semester 1 to 6** **M.Sc.(I. T.) – 2 years – Semester 7 to 10**
Eligibility Criteria	5 Years (Integrated): H S C / Equivalent Examination from Science Stream (A / B / AB Group) or Vocational Stream or General Stream (Commerce) with English as one of the subject.
Objective of Program	The objective of the program is to transform students into professionals by indoctrinating advanced technical knowledge, enhancing technical skills, communication skills and provide outstanding placement in reputed I.T. companies.
Program Outcome	**PO1 : Fundamental Knowledge Enrichment** Program trains students with the core computer science and Information Technology (IT) knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development. **PO2 : Critical Thinking Development** The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem. **PO3 : Advanced Emerging Technology Awareness** The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry. **PO4 : Advanced Tools Usage** The program teaches the students to apply the advanced tools to solve real world problems. **PO5 : Nurturing Project Planning and Management Capabilities** The program trains students for designing and conceptualizing the software architecture, planning and managing the product development process of complex and live software projects. It also makes students understand the decision making for selection of an appropriate project management capabilities. **PO6 : Real World Problem / Project Development** Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready. **PO7 : Team Work and Leadership Development** Trains students to work in a team and also to take leadership of the of the project management team.
Program Specific Outcomes	PSO1 : Students will learn to develop and strengthen the fundamental concepts that are required to solve complex programming problems.

	PSO2 : Students will develop the ability to identify, formulate and design solutions to face computational challenges. PSO3 : Students will be able to apply software engineering concepts to solve real world problems. PSO4 : Students will be able to learn emerging technologies and apply them for the development of Web applications, Mobile application, Desktop application, etc. PSO5: Students will develop necessary Entrepreneur and Technical skills to start their own business in I.T domain.
Mapping between POs and PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
PO1					
PO2					
PO3					
PO4					
PO5					
PO6					
PO7					

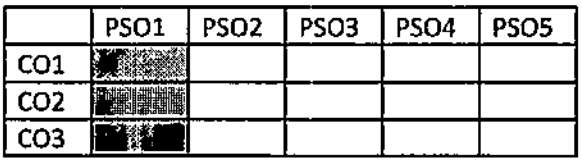
Medium of Instruction	English

Program Structure		B.Sc. (I.T.) – Semester 1 (M.Sc. (I.T.) 5 years Integrated Course)						
Course Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
101	Communication Skills in English	4	0	4	3 Hrs	70	30	100
102	Mathematics – I	4	0	4	3 Hrs	70	30	100
103	Fundamentals of Computer	4	0	4	3 Hrs	70	30	100
104	Fundamentals of Programming using C-I	4	0	4	3 Hrs	70	30	100
105	Internet and Web Technologies	4	0	4	3 Hrs	70	30	100
106	Practical 1	0	6	3	2 Hrs	70	30	100
107	Practical 2	0	4	2	2 Hrs	70	30	100
108	NSS/Sports/Saptdhara	-	-	2	-	-	-	-
	Total	20	10	27	-	490	210	700

Program Structure		B.Sc. (I.T.) – Semester 2 (M.Sc. (I.T.) 5 years Integrated Course)						
Course Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
201	Business Communication Skills in English	4	0	4	3 Hrs	70	30	100
202	Mathematics- II	4	0	4	3 Hrs	70	30	100
203	Fundamentals of Programming using C- II	4	0	4	3 Hrs	70	30	100
204	E Business and Cyber Laws	4	0	4	3 Hrs	70	30	100
205	Introduction to DBMS	4	0	4	3 Hrs	70	30	100
206	Practical 3	0	6	3	2 Hrs	70	30	100
207	Practical 4	0	4	2	2 Hrs	70	30	100
208	NSS/Sports/Saptdhara	-	-	2	-	-	-	-
	Total	20	10	27	-	490	210	700

B.Sc. (I.T.) 1st Semester

Course: 103: Fundamentals of Computer

Course Code	103
Course Title	Fundamentals of Computer
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2021
Purpose of Course	This course helps students to understand basics of computer and office tools
Course Objective	The students would be able to understand the basic uses and applications of computers, to know different components of computers, to get familiar with various computer codes, basics of operating systems and commands. The student would also learn open-source office tools.
Course Out comes	CO1 : Student will be able to learn about computer hardware components and its working CO2 : Students will be able to work with different types of number systems ,and able to perform numerical of Binary, Octal and Hexa-decimal numbers CO3 : Student will be able to learn various type of operating system, working of Linux operating system and work on features of openoffice open source software
Mapping between COs with PSOs	
Pre-requisite	NIL
Course Outcome	Students will be able to understand better use of computer and its operations

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

B.Sc. (I.T.) 1st Semester

Course : 104 : Fundamentals of Programming Using C-I

Course Code	104
Course Title	Fundamental of Programming using C-I
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2021
Purpose of Course	To provide fundamental knowledge of programming using the C language.
Course Objective	To impart knowledge of basic programming concepts using C language.
Course Out comes	CO1: Students will be able to learn various Problem-solving techniques CO2 : Students will be able to learn basics of c programming language and perform practical programs CO3 : Students will be able to do string manipulation and array task
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	NIL
Course Outcome	Students will be able to write simple programs using C language

B.Sc. (I.T.) 1st Semester

Course : 105 : Internet and Web Technology

Course Code	105
Course Title	Internet and Web Technology
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2021
Purpose of Course	To Provide basic knowledge about Internet and Web Designing using HTML.
Course Objective	To make the students aware of Internet and website designing using HTML, CSS and CSS Framework
Course Out comes	CO1 : Students will be able to get knowledge of internet technologies and services CO2 : Students will be able to learn HTML structure and various tags CO3 : Students will have the ability to design and develop web application, and also perform animations with CSS and JavaScript
Mapping between COs with PSOs	
Pre-requisite	NIL
Course Outcome	Students will be able to understand the basics of Internet and develop static websites

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

B.Sc. (I.T.) 1st Semester

Course : 106 : Practical 1

Course Code	106
Course Title	Practical 1
Credit	3
Teaching Per Week	6 Hrs
Minimum Weeks Per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Last Review/Revision	June 2021
Purpose of Course	To impart practical knowledge of programming
Course Objective	To give practical knowledge of C programming
Prerequisite	Nil
Course Out comes	CO1 : Students will be able to solve and program complex problem using c language CO2 : Students will be able work on c programming conditional and looping concepts CO3 : Student will be able to work with array and strings
Mapping between COs with PSOs	
Course Outcome	Students will be able to solve problems using C language

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

P. N Desai

B.Sc. (I.T.) 1st Semester

Course : 107 : Practical 2

Course Code	107
Course Title	Practical 2
Credit	2
Teaching Per Week	4 Hrs
Minimum Weeks Per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Last Review/Revision	June 2021
Purpose of Course	To impart practical knowledge of static website development
Course Objective	To give practical knowledge of HTML
Prerequisite	Nil
Course Out comes	CO1 : Students will be able to design static website using html. CO2 : Students will be able to apply CSS and bootstrap in website. CO3 : Students will be able to make website user friendly using UX/UI and SEO Techniques.
Mapping between COs with PSOs	
Course Outcome	Students will be able to develop static website using HTML

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

B.Sc. (I.T.) 2nd Semester

Course: 203 : Fundamentals of Programming using C - II

Course Code	203
Course Title	Fundamentals of Programming using C - II
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2021
Purpose of Course	To teach advance concepts of C language
Course Objective	To impart knowledge of structures, union, pointers, user defined functions, preprocessor directives and file management features of C language.
Course Outcomes	CO1 : Students will be able to learn advanced concepts of c programming like pointer , structure,union CO2 : Students will be able to have the knowledge of file system and file management concepts with c language CO3 : Students will be have ability to work on pre-processor
Mapping between COs with PSOs	
Pre-requisite	Basic knowledge of problem solving and C programming.
Course Outcome	Students will be able to write programs using structures, union, pointers, user defined functions, pre-processor directives and file management in C language.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

B.Sc. (I.T.) 2nd Semester

Course : 204 : E Business and Cyber Laws

Course Code	204
Course Title	E Business and Cyber Laws
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2021
Purpose of Course	To provide fundamental knowledge of E Business and Cyber Laws
Course Objective	To Impart fundamental Knowledge of E Business and Cyber Laws
Course Out comes	CO1 : Students will be able learn about E-commerce business models and strategy CO2 : Students will get knowledge about identifying the key security threats in the E-commerce environment. CO3 : Student will learn various type of cyber security techniques and cyber laws
Mapping between COs with PSOs	
Pre-requisite	Knowledge of Fundamental of Computers, Computer Networks
Course Outcome	Students will be able to understand E Business, Cryptocurrency, Blockchain, Cyber Security and Cyber Laws

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	[redacted]				[redacted]
CO2					
CO3					

B.Sc. (I.T.) 2nd Semester

Course : 205 : Introduction to DBMS

Course Code	205
Course Title	Introduction to DBMS
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2021
Purpose of Course	To introduce the basic concepts of database management system that includes data models, database design and basic practical of open-source DBMS.
Course Objective	To teach fundamental concepts of DBMS including data models, ER diagrams, different types of databases. This course also entails practical aspects of open-source databases.
Course Out comes	CO1 : Student will be able to learn basic concept of database management system and data models CO2 : Students will be have the knowledge of various data models CO3 : Student will be able work on database management system MySQL and perform practical like creating database , tables and manipulating records
Mapping between COs with PSOs	
Pre-requisite	Fundamentals of Computer, Programming Language
Course Outcome	Students will be able to understand and implement basic database design principles, and learn overview of different types of databases. Students will also be able to perform practical databases.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

B.Sc. (I.T.) 2nd Semester

Course : 206 : Practical 3

Course Code	206
Course Title	Practical 3
Credit	3
Teaching Per Week	6 Hrs
Minimum Weeks Per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Last Review/Revision	June 2021
Purpose of Course	To impart practical knowledge of structures, union, pointers, user defined functions, pre-processor directives and file management features of programming.
Course Objective	To give practical knowledge of structures, union, pointers, user defined functions, pre-processor directives and file management using C language.
Prerequisite	Basic knowledge of C language
Course Out comes	CO1 : Students will be able to solve problems using advanced features of c language. CO2 : Students will be able to do practicals on structure , union, pointer and user defined functions. CO3 : Students will be able to do file management operations in c.
Mapping between COs with PSOs	
Course Outcome	Students will be able to solve problems using advance features of C language

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

B.Sc. (I.T.) 2nd Semester

Course : 207 : Practical 4

Course Code	207
Course Title	Practical 4
Credit	2
Teaching Per Week	4 Hrs
Minimum Weeks Per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Review/Revision	June 2021
Purpose of Course	The course provides practical knowledge of open source database – MySQL.
Course Objective	The course prepares students to execute basic database statements using MySQL.
Prerequisite	Basic Programming Concepts
Course Out comes	CO1 : Students will be able to create database and tables in MySQL CO2 : Students will be able to perform various data definition operations on database CO3 : Students will be able to manipulate data using data manipulation statements
Mapping between COs with PSOs	
Course Outcome	After completion of this course, students will be able to perform basic DDL, DML commands including SQL queries using MySQL.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

B.Sc. (I.T.) 3rd Semester

Course : 302 : Microprocessor and Assembly Language

Course Code	302
Course Title	Microprocessor and Assembly Language
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2017
Purpose of Course	To understand importance and role of micro processor in computer organized system.
Course Objective	This course gives concepts about interfacing of devices with microprocessor and develops logic with assembly language at machine level.
Course Outcomes	CO1: students will be able to get knowledge of microprocessor 8086 with its operations and architecture CO2 : Students will be able to learn assembly language programming and can implement of logical programs for 8086 microprocessor CO3 : students will be able to learn interfacing concept of microprocessors and programmable Peripherals Devices
Mapping between COs with PSOs	
Pre-requisite	Fundamentals of Digital Logic Design and Computer Organization
Course Out come	Students will understand 8086 microprocessor, addressing modes and Assembly language instructions to implement logical programs for 8086 microprocessor based computer system.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

B.Sc. (I.T.) 3rd Semester

Course : 303 : Data Structures

Course Code	303
Course Title	Data Structures
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2017
Purpose of Course	To introduce the basic concepts of data structures and algorithms involving linear and non-linear data structures and their logical implementation.
Course Objective	To teach fundamental concepts of data structures including stack, queue, linked list, tree and various sorting, searching techniques. This course also entails practical aspect of applications of data structures.
Course Outcomes	CO1 : Students will be able to learn data structure techniques and algorithms used for solving complex problems CO2 : Students will be able to learn linear data structure and non-linear data structure algorithms CO3 : Students will be able to learn working of various sorting and searching algorithms
Mapping between COs with PSOs	
Pre-requisite	Fundamentals of Computer, C Programming Language
Course Out come	After studying the course, students will be able to use and Implement data structures and their applications. Students will also be able to learn complex data structure like binary tree, AVL tree and various sorting algorithms.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

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B.Sc. (I.T.) 3rd Semester

Course : 304 : Object Oriented Programming

Course Code	304
Course Title	Object Oriented Programming
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2017
Purpose of Course	To Impart knowledge of object-oriented programming concepts
Course Objective	To make student learn the concepts of Object-Oriented Programming
Course Outcomes	CO1 : Students will be able to learn Object Oriented programming concepts. CO2 : Students will be able to able to learn object oriented programming concepts like data abstraction, inheritance, polymorphism using C++ CO3 : Students will be able to learn I/O operation on files using IO streams and exception handling using C++.
Mapping between COs with PSOs	
Pre-requisite	C Programming
Course Out come	Students will be able to understand OOP concepts with implementation in C++.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

B.Sc. (I.T.) 3rd Semester

Course : 305 : Computer Network

Course Code	305
Course Title	Computer Network
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Last Review / Revision	June 2017
Purpose of Course	To provide fundamental knowledge of Computer Network
Course Objective	To Impart fundamental Knowledge of Computer Network
Course Outcomes	CO1 : Students will be able to learn network components and technologies CO2 : Students will be able to learn layered network models and protocols CO3 : Students will be able to learn various network security techniques.
Mapping between COs with PSOs	
Pre-requisite	Knowledge of Fundamental of Computers
Course Out come	Students will be able understand computer networking and fundamental of network security

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

B.Sc. (I.T.) 3rd Semester

Course : 306 : Practical 5

Course Code	306
Course Title	Practical 5
Credit	2
Teaching Per Week	4 Hrs
Minimum Weeks Per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Last Review/Revision	June 2017
Purpose of Course	To impart practical knowledge of various data structures
Course Objective	To give practical knowledge on applications of data structures
Prerequisite	Basic knowledge of C programming language
Course Out comes	CO1 : Students will be able to develop programs of linear and nonlinear data structures. CO2 : Students will be able to practically implement data structures like stack, queue , linked list etc.. CO3 :Students will be able to write programs of searching and sorting techniques.
Mapping between COs with PSOs	
Course Outcome	Students will be able to perform practical on various linear and nonlinear data structures

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

P. M Desai

B.Sc. (I.T.) 3rd Semester

Course : 307: Practical 6

Course Code	307
Course Title	Practical6
Credit	3
Teaching Per Week	6Hrs
Minimum Weeks Per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Last Review/Revision	June 2017
Purpose of Course	To impart practical knowledge of object oriented programming
Course Objective	To give practical knowledge of object oriented programming
Prerequisite	Basic knowledge of C programming language
Course Out comes	CO1 : Students will be able to solve problems using object oriented programming with C++. CO2 : Students will be able to implement programs using object oriented concepts like inheritance ,polymorphisms and data abstraction in C++. CO3 :Students will be able to do practical programs of I/O operation on files using IO streams and exception handling using C++
Mapping between COs with PSOs	
Course Outcome	Students will be able to solve problems using object oriented programming methodologies

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	[redacted]	[redacted]			
CO2	[redacted]	[redacted]			
CO3					

P. Y. Desai

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B.Sc. (I.T.) 4th Semester

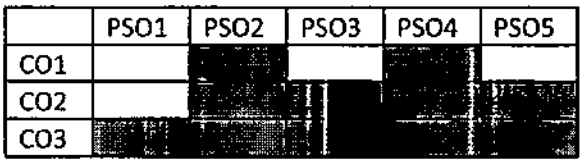
Course: 401: Environmental Science

Course Code	401
Course Title	Environmental Science
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	To make students aware of the environment and related issues.
Course Objective	To sensitize the students towards the environment and inculcate environmental values and ethics in them.
Course Outcomes	CO1 : Students will be able to understand the natural environment as a system and how human activities affect the system. CO2 : Students will be able to interpret environmental resource management and sustainability conflicts from multiple perspectives. CO3 : Students will be able to effectively analyze and integrate the social and natural sciences to understand diverse environmental and sustainability challenges ranging from local issues to global environments.
Mapping between COs with PSOs	
Pre-requisite	Basic knowledge about the environment.
Course Outcome	To bring an environmental awareness and change in their attitude towards nature and environment.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	[redacted]				
CO2	[redacted]				
CO3	[redacted]				

B.Sc. (I.T.) 4th Semester

Course: 402: Fundamental of Embedded System and IOT

Course Code	402
Course Title	Fundamental of Embedded System and IOT
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2017
Purpose of Course	To understand importance and role of embedded system in Real world applications
Course Objective	This course gives concepts about interfacing of devices with microcontroller and develops logic with assembly and 'C' language at machine level.
Course Outcomes	CO1 : Students will be able to learn about Microcontrollers. CO2 : Students will be able to learn about the Embedded System Development Process. CO3 : Students will be able to learn about the Embedded System Application in IOT.
Mapping between COs with PSOs	
Pre-requisite	Fundamentals of Digital Logic Design, 'C' language, microprocessor and Computer system
Course Outcome	Students will understand 8 bit and 32 bit microcontroller architecture, addressing modes and device interfacing. Student can implement logical programs for 8051 controller based embedded system and understand its applicability in IOT.

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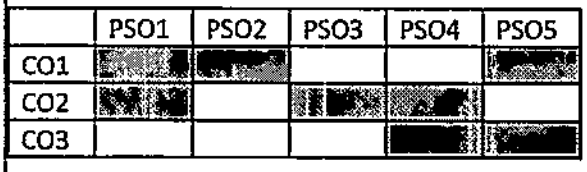
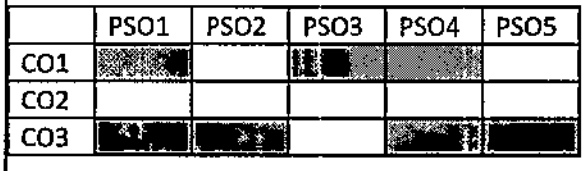
B.Sc. (I.T.) 4th Semester

Course: 403: VB.NET

Course Code	403
Course Title	VB.NET
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2017
Purpose of Course	This course helps to learn basics programming of windows forms applications using Visual Basic .NET.
Course Objective	The objective of the course is to impart basic introduction to Microsoft .NET technology and concepts of GUI applications.
Course Outcomes	CO1 : Students will be able to learn about Microsoft .NET Framework Technology and the importance of Object Oriented Programming. CO2 : Students will be able to learn about how to connect database by using ADO.NET and perform CRUD operations on database. CO3 : Students will be able to develop windows form based applications using VB.NET.
Mapping between COs with PSOs	
Pre-requisite	Knowledge of Programming, Object Oriented Programming and Database Management System
Course Outcome	Students will be able to develop windows forms basic applications using VB.NET.

B.Sc. (I.T.) 4th Semester

Course: 404: Relational Database Management System-I

Course Code	404
Course Title	**Relational Database Management System-I**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2017
Purpose of Course	To introduce the concepts of Relational Database design, relational algebra, functional dependency and normalization of relation.
Course Objective	1. To acquaint the students with fundamental concepts of RDBMS 2. To make student understand process of normalization, functional dependency with case study. 3. To entail practical aspect of Structure Query Language (SQL)
Course Outcomes	CO1 : Students will be able to learn about Introduction to RDBMS, data models, E-R diagram, relational database. CO2 : Students will be able to design a good database using normalization, decomposition and functional dependency. CO3 : Students will be able to perform practical on database through DDL statements, DML statements and Structure Query Language.
Mapping between COs with PSOs	
Pre-requisite	Basic Concepts of DBMS
Course Outcome	Students will be able to understand and implement relational database design principles, learn the process of normalizing the relation. Students will also be able to perform practical on database through DDL, DML statement of SQL

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

B.Sc. (I.T.) 4th Semester

Course: 405: Web Development - I

Course Code	**405**
Course Title	**Web Development - I**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2017
Purpose of Course	To provide knowledge of client side programming, XML and jQuery
Course Objective	To teach client side programming using Java Script, core concepts of XML and jQuery
Course Outcomes	CO1 : Students will be able to learn about client side technology using JavaScript. CO2 : Students will be able to learn jQuery to manipulate HTML elements & CSS properties, showing effects and handle events. CO3 : Students will be able to learn about XML and parse XML data using JavaScript.
Mapping between COs with PSOs	
Pre-requisite	NIL
Course Outcome	Students will be able to do client side validation using Java Script, understand basic concepts of XML and jQuery

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

B.Sc. (I.T.) 4th Semester

Course: 406: Practical 7

Course Code	406
Course Title	Practical 7
Credit	1
Teaching per Week	2 Hrs
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2017
Purpose of Course	To impart basic practical knowledge of embedded system and its applications in IoT
Course Objective	To give practical knowledge to develop basic programming on microcontroller for embedded system
Course Outcomes	CO1 : Students will be able to develop programs for microcontroller peripheral setup using C Language. CO2 : Students will be able to implement sensors and actuators in embedded system. CO3 : Students will be able to understand communication between Embedded System.
Mapping between COs with PSOs	
Pre-requisite	Basic knowledge of digital logic design, C programming language, microprocessor and computer system.
Course Outcome	Students will be able to develop programs to interface devices with embedded system and process control logics using c- language.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

B.Sc. (I.T.) 4th Semester

Course: 407: Practical 8

Course Code	407
Course Title	**Practical 8**
Credit	3
Teaching per Week	6 Hrs
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2017
Purpose of Course	To impart practical knowledge of database driven windows form application
Course Objective	To give practical knowledge of visual basic .net window forms application and SQL
Course Outcomes	CO1 : Students will be able to develop applications using Microsoft .NET Framework Technology. CO2 : Students will be able to create databases in Oracle and perform DDL and DML operations using Structure Query Language. CO3 : Students will be able to develop windows form based applications using VB.NET and integrate databases in it.
Mapping between COs with PSOs	
Pre-requisite	Basic knowledge of DBMS and Object Oriented Programming.
Course Outcome	Students will be able to develop GUI based application using .NET framework and SQL

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

B.Sc. (I.T.) 4th Semester

Course: 408: Practical 9

Course Code	408
Course Title	Practical 9
Credit	1
Teaching per Week	2 Hrs
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2017
Purpose of Course	To impart practical knowledge of client side programming
Course Objective	To give practical knowledge of client side programming
Course Outcomes	CO1 : Students will be able to develop client side script programs using JavaScript. CO2 : Students will be able to develop interactive web applications using jQuery. CO3 : Students will be able to create XML documents and parse it programmatically using JavaScript.
Mapping between COs with PSOs	
Pre-requisite	Nil
Course Outcome	Students will be able to perform client side scripting

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	[redacted]			[redacted]	[redacted]
CO2	[redacted]			[redacted]	[redacted]
CO3	[redacted]			[redacted]	[redacted]

B.Sc. (I.T.) 5th Semester

Course: 501: Web Development - II

Course Code	**501**
Course Title	**Web Development - II**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2018
Purpose of Course	This course provides practical approach for web application development using open source web technologies and language like PHP and frameworks available as open source.
Course Objective	To make student understand significance of open source technology, MVC architecture, and develop web applications using open source language and framework.
Course Outcomes	CO1 : Students will be able to learn about Open Source Technology. CO2 : Students will be able to design and develop dynamic , database driven web applications using PHP. CO3 : Students will be able to learn about MVC architecture and Web Application Frameworks.
Mapping between COs with PSOs	
Pre-requisite	Object Oriented Fundamentals, Web Technology Fundamentals
Course Outcome	After studying this course, students will be able to understand concept and importance of open source technology and also develop web application using open source languages and framework.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

B.Sc. (I.T.) 5th Semester

Course: 502: Relational Database Management System – II

Course Code	502
Course Title	**Relational Database Management System – II**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2018
Purpose of Course	To impart knowledge of Database Architecture and PL/SQL programming.
Course Objective	This course provides knowledge about Oracle Database Architecture and Oracle PL/SQL programming concepts.
Course Outcomes	CO1 : Students will be able to learn about Oracle Database Architecture. CO2 : Students will be able to write code using PL/SQL programming concepts using cursors, triggers, packages, procedures, functions and transactions. CO3 : Students will be able to learn about indexes, sequences, data integrity, creating and maintaining tables and user privileges.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	DBMS, SQL
Course Outcome	Students will understand Oracle Database Architecture and will be able to write different PL/SQL programs.

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B.Sc. (I.T.) 5th Semester

Course: 503: Computer Graphics

Course Code	503
Course Title	Computer Graphics
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2018
Purpose of Course	The purpose of the course is to make student capable of implementing the basic theoretical concepts, methodology and tools of Computer Graphics.
Course Objective	The objective of the course is to introduce the programming principles and theoretical foundations of computer graphics. This course provides depth knowledge of computer graphics environment and tools to develop graphics application.
Course Outcomes	CO1 : Students will be able to understand the basics of computer graphics, different graphics systems and applications of computer graphics. CO2 : Students will be able to write programs that demonstrate 2D and 3D graphic transformations. CO3 : Students will be able to develop programs for coloring and shading.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Basic knowledge of Programming and basic of Mathematics.
Course Outcome	After completion of this course, the student will be able to develop and manage Computer Graphics applications.

B.Sc. (I.T.) 5th Semester

Course: 504: System Analysis and Design

Course Code	504
Course Title	System Analysis and Design
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2018
Purpose of Course	To enable students to understand modeling ,designing, analyzing and testing a system
Course Objective	To give coherent view of design and analysis intended for software development process. The course provides comprehensive concepts of software engineering practice that involves various models, analysis models, design concepts, various testing methods and introduction to UML diagrams.
Course Outcomes	CO1 : Students will be able to select and implement different software development process models. CO2 : Students will be able to develop software architecture/design. CO3 : Students will be able to learn about the importance of Software Testing and different Software Testing methods.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Must have practical knowledge of at least one language for better understanding and relevance
Course Outcome	After finishing with the course, student will be able to choose the right model for a new to be developed system, perform requirement elicitation and prepare documentation for design, analysis and testing of system.

P. M. Dean

B.Sc. (I.T.) 5th Semester

Course: 506: Practical 10

Course Code	506
Course Title	Practical 10
Credit	3
Teaching per Week	6 Hrs
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2018
Purpose of Course	The course provides practical knowledge of advanced web applications development.
Course Objective	The course prepares students to develop web applications with PHP and frameworks.
Course Outcomes	CO1 : Students will be able to develop web application in PHP. CO2 : Students will be able to implement MVC architecture in web application. CO3 : Students will be able to develop web application using Web Application Frameworks.
Mapping between COs with PSOs	
Pre-requisite	Object Oriented Programming, Web Technology Fundamentals
Course Outcome	After completion of this course, students will be able to develop web applications in PHP and frameworks.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1				[redacted]	[redacted]
CO2				[redacted]	[redacted]
CO3				[redacted]	[redacted]

B.Sc. (I.T.) 5th Semester

Course: 507: Practical 11

Course Code	507
Course Title	Practical 11
Credit	2
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2018
Purpose of Course	To impart practical knowledge of PL/SQL programming.
Course Objective	To give practical knowledge of PL/SQL programming.
Course Outcomes	CO1 : Students will be able to create PL/SQL programs in RDBMS. CO2 : Students will be able to manage database transactions using PL/SQL . CO3 : Students will be able to write code using PL/SQL programming concepts using cursors, triggers, packages, procedures, functions and transactions.
Mapping between COs with PSOs	
Pre-requisite	knowledge of SQL, DBMS
Course Outcome	Students will be able to create PL/SQL programs.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1				[redacted]	[redacted]
CO2				[redacted]	[redacted]
CO3				[redacted]	[redacted]

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B.Sc. (I.T.) 5th Semester

Course: 508: Practical 12

Course Code	508
Course Title	Practical 12
Credit	1
Teaching per Week	2 Hrs
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2018
Purpose of Course	To impart practical knowledge of operations on computer graphics primitives. Usage of tool to develop computer graphics applications
Course Objective	To give practical knowledge on applications of computer graphics
Course Outcomes	CO1 : Students will be able to implement algorithms for basic concepts of computer graphics. CO2 : Students will be able to write programs for 2D and 3D transformation and clipping. CO3 : Students will be able to write programs for coloring and shading of graphics.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Basic knowledge of C, C++ programming language
Course Outcome	Students will be able to perform practical on various computer graphics applications

B.Sc. (I.T.) 6th Semester

Course: 601: Java

Course Code	601
Course Title	Java
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2018
Purpose of Course	To be learn the concept of OOPs Threads, Graphics, Database operation in java.
Course Objective	To introduce the comprehensive concepts of java programming language that includes OOP concepts using core java, desktop based visual designs using swing and applets. At the end of this course, a student will be able to comprehend the fundamental concepts required for the development and design of software systems.
Course Outcomes	CO1 : Students will be able to learn and use Object Oriented Programming concepts for problem solving using Java programming language. CO2 : Students will be able to write programs using different Java libraries. CO3 : Students will be able to write database programming using java.
Mapping between COs with PSOs	
Pre-requisite	Object Oriented Concepts of C++
Course Outcome	Students will be able to use various java concepts and develop a java based system.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	[redacted]	[redacted]			[redacted]
CO2	[redacted]	[redacted]			[redacted]
CO3	[redacted]	[redacted]			[redacted]

B.Sc. (I.T.) 6th Semester

Course: 602: ASP.NET

Course Code	602
Course Title	ASP.NET
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2018
Purpose of Course	This course helps to learn basics programming of web forms applications using C#.NET.
Course Objective	The objective of the course is to impart basic introduction to Microsoft C#.NET language and concepts of web application development technology.
Course Outcomes	CO1 : Students will be able to learn c# programming language. CO2 : Students will be able to learn about web servers and web application. CO3 : Students will be able to learn about dynamic web application development and database connectivity.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Knowledge of Programming, Object Oriented Programming, Database Management System and Scripting languages like HTML, JavaScript, etc.
Course Outcome	Students will be able to develop web forms basic applications using C#.NET.

B.Sc. (I.T.) 6th Semester

Course: 603: Operating System

Course Code	603
Course Title	Operating System
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2018
Purpose of Course	Elaborate understanding of Middle Layer which manages hardware and application software.
Course Objective	To understand detailed working of OS.
Course Outcomes	CO1 : Students will be able to learn about fundamentals of operating system. CO2 : Students will be able to understand the concept of processes, threads and its scheduling algorithms, various memory management schemes, file and device management, I/O management in detail. CO3 : Students will be able to learn about shell scripting.
Mapping between COs with PSOs	
Pre-requisite	Basic knowledge of Computer organization, data structures and computer programming
Course Outcome	Students will be able to understand OS internals and learn basic shell scripting

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	[redacted]				
CO2		[redacted]			
CO3	[redacted]				

P. M Desai

B.Sc. (I.T.) 6th Semester

Course: 604: E Business and Cyber Laws

Course Code	604
Course Title	E Business and Cyber Laws
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2018
Purpose of Course	To provide fundamental knowledge of E Business and Cyber Laws
Course Objective	To Impart fundamental Knowledge of E Business and Cyber Laws
Course Outcomes	CO1 : Students will be able to learn about E-commerce CO2 : Students will be able to learn about Encryption Techniques and their application in the field of computer science to solve security problems. CO3 : Students will be able to understand Fundamentals of Cyber Law.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Knowledge of Fundamental of Computers, Computer Networks
Course Outcome	Students will be able to understand E Business , Cryptocurrency, Blockchain, Cyber Security and Cyber Laws

P. N Deka

B.Sc. (I.T.) 6th Semester

Course: 605: Practical 13

Course Code	605
Course Title	Practical 13
Credit	3
Teaching per Week	6 Hrs
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2018
Purpose of Course	To impart practical knowledge of object oriented programming and other concepts using java
Course Objective	To give practical knowledge of object oriented programming using java
Course Outcomes	CO1 : Students will be able to develop application using Object Oriented concepts in Java. CO2 : Students will be able to develop application in JAVA Applets and Swing. CO3 : Students will be able to develop backend application using Java and JDBC connections.
Mapping between COs with PSOs	
Pre-requisite	Basic knowledge of C++ programming language and concepts
Course Outcome	Students will be able to solve problems using java; object oriented programming methodologies

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

B.Sc. (I.T.) 6th Semester

Course: 606: Practical 14

Course Code	606
Course Title	Practical 14
Credit	3
Teaching per Week	6 Hrs
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2018
Purpose of Course	To impart practical knowledge of web programming
Course Objective	To give practical knowledge of ASP.Net programming using C#
Course Outcomes	CO1 : Students will be able to develop console based application and windows form application in C#.NET CO2 : Students will be able to develop web application in ASP.NET using C#.NET CO3 : Students will be able to integrate ADO.NET in .NET applications.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Programming concepts, HTML and GUI development
Course Outcome	Students will be able to develop web applications in ASP.Net using C#.Net language

B.Sc. (I.T.) 6th Semester

Course: 607: Project

Course Code	607
Course Title	Project
Credit	4
Teaching per Week	-
Duration	3 Months
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2018
Purpose of Course	The project work is introduced to make students implement their theory and practical knowledge they learned during this semester to solve real life problems for software applications.
Course Objective	To help students to develop software applications using any programming language or framework.
Course Outcomes	CO1 : Students will be able to develop software application. CO2 : Students will be able to apply Software Engineering concepts to solve real world problems. CO3 : Students will be able to apply database related concepts to design database for the project.
Mapping between COs with PSOs	
Pre-requisite	Knowledge of Object Oriented Programming, Web Technology Fundamentals, Software Engineering.
Course Outcome	After completion of this course, students will be able to develop software applications.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.T.) 7th Semester

Course: 701: Application Development using Full Stack

Course Code	701
Course Title	**Application Development using Full Stack**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	This course is designed to augment students' programming skills with the latest technologies.
Course Objective	To provide understanding of the prototypal inheritance, Node, express, mongoDB, Angular and making students able to develop programs Full stack programs.
Course Outcomes	CO1 : Students will be able to learn about MVC applications using NODE.JS, Express. CO2 : Students will be able to develop backend REST API using Express and learn API Security. CO3 : Students will be able to develop front end apps using Angular and version controlling using git.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Basic Javascript
Course Outcome	This would help students to understand the paradigm change In programming and help them in developing applications using express, node with document database MongoDB along with angular.

M.Sc. (I.T.) 7th Semester

Course: 702: Application Development using .NET CORE

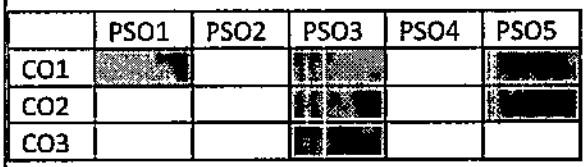
Course Code	702
Course Title	**Application Development using .NET CORE**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	This course helps students to understand and use .NET advanced concepts with real world .NET applications.
Course Objective	To impart knowledge of Enterprise application development using .NET Framework.
Course Outcomes	CO1 : Students will be able to learn MVC Core and MVC 5. CO2 : Students will be able to learn about Web API in .NET framework and .NET Core and use it in other apps. CO3 : Students will be able to learn C# language features like tuples, expression bodied members, local/nested functions, delegates & events and LINQ.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Object Oriented Fundamental, ADO.NET, ASP.NET, Basic knowledge of C#
Course Outcome	Students will be able to develop enterprise applications using .NET advanced concepts.

M.Sc. (I.T.) 7th Semester

Course: 703: Software Engineering

Course Code	703
Course Title	Software Engineering
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	To develop skills of software engineering in students.
Course Objective	To provide insights about software engineering project planning, scheduling, SCM fundamentals, pattern based design and advanced UML concepts. Students would be able to do plan, design, analyze risk and manage a software development process efficiently after learning this course.
Course Outcomes	CO1 : Students will be able to learn about how to prepare SRS and use it in projects. CO2 : Students will be able to learn project management activities including Risk Management. CO3 : Students will be able to learn about object oriented analysis and design.
Mapping between COs with PSOs	
Pre-requisite	Basic concepts of software analysis and design
Course Outcome	This would help students to analyze risk, perform scheduling and design any kind of system.

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M.Sc. (I.T.) 7th Semester

Course: 704: Optimization Techniques

Course Code	704
Course Title	**Optimization Techniques**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The purpose of this course is to impart knowledge of various Optimization Techniques.
Course Objective	To impart knowledge of various Optimization Techniques to solve real world problem.
Course Outcomes	CO1 : Students will be able to learn various optimization techniques like job sequencing and network analysis. CO2 : Students will be able to learn about queuing theory and concepts of simulation. CO3 : Students will be able to learn about dynamic programming.
Mapping between COs with PSOs	
Pre-requisite	Basic knowledge of Mathematics.
Course Outcome	Students will be able to apply Optimization Techniques for solving real world problems.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.T.) 7th Semester

Course: 705: Practical 15

Course Code	**705**
Course Title	**Practical 15**
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2019
Purpose of Course	The course provides practical knowledge of web application development using full stack development frameworks like Node.js, AngularJs, Express, etc.
Course Objective	The course prepares students to develop lightweight application using full stack development frameworks like Node.js, AngularJs, Express, etc.
Course Outcomes	CO1 : Students will be able to develop MVC based programs using NODE.JS, Express. CO2 : Students will be able to develop backend REST API using Express and implement API Security. CO3 : Students will be able to develop front end apps using Angular and implement version controlling using git practically.
Mapping between COs with PSOs	
Pre-requisite	Object Oriented Programming Concepts
Course Outcome	After completion of this course, students will be able to develop light weight applications using full stack development frameworks like Node.js, AngularJs, Express, etc.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.T.) 7th Semester

Course: 706: Practical 16

Course Code	706
Course Title	Practical 16
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2019
Purpose of Course	The course provides practical knowledge of C#, LINQ, .NET Core, MVC, etc.
Course Objective	The course prepares students to develop .NET based web applications.
Course Outcomes	CO1 : Students will be able to develop MVC Core and MVC 5 based programs. CO2 : Students will be able to develop Web API in .NET framework and .NET Core and use it in other apps. CO3 : Students will be able to implement C# language features like tuples, expression bodied members, local/nested functions, delegates & events and LINQ practically.
Mapping between COs with PSOs	
Pre-requisite	Object Oriented Programming Concepts
Course Outcome	After completion of this course, students will be able to develop .NET based web applications.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.T.) 7th Semester

Course: 707: Part Time Project 1

Course Code	**707**
Course Title	**Part Time Project 1**
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2019
Purpose of Course	The project work is introduced to make students implement their theory and practical knowledge they learned during this semester to solve real life problems for software applications.
Course Objective	To help students to develop software applications using AngularJS, Node.js and .NET.
Course Outcomes	CO1 : Students will be able to develop project using different technologies like Angular, Node.js and .NET. CO2 : Students will be able to apply software engineering concepts to solve real world problems. CO3 : Students will be able to apply database related concepts to design database for the project.
Mapping between COs with PSOs	
Pre-requisite	Knowledge of Object Oriented Programming, Web Technology Fundamentals, Software Engineering.
Course Outcome	After completion of this course, students will be able to develop software applications.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.T.) 8th Semester

Course: 801: Java Web Development

Course Code	**801**
Course Title	**Java Web Development**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	This course helps students to get an idea about how to use Java in Web Programming
Course Objective	The objective of the course is to make them understand and implement the Web Oriented Project Development Model of Java
Course Outcomes	CO1 : Students will be able to learn about Java architecture and different frameworks. CO2 : Students will be able to learn about Java design patterns. CO3 : Students will be able to learn about Java security with authentication and authorization.
Mapping between COs with PSOs	
Pre-requisite	Understanding of OOPS concept and its implementation by Java Language
Course Outcome	Students will be able to develop Web Application in Java

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.T.) 8th Semester

Course: 802: Enterprise Java

Course Code	802
Course Title	Enterprise Java
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	This course helps students to understand and develop large scale enterprise , distributed and scalable applications using Java
Course Objective	The objective of the course is to provide in depth knowledge of all JAVA API which contribute to the development of high performing , secure , distributed and scalable applications in line with the current trends in the software industry
Course Outcomes	CO1 : Students will be able to learn about enterprise business logic, enterprise security and database persistence. CO2 : Students will be able to learn about concepts of web services, REST services and REST patterns. CO3 : Students will be able to learn about enterprise java security with SSL certificates, securing REST services with authentication and SSL.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Knowledge of Java Language and Web Application concepts
Course Outcome	Students will be able to develop large scale and distributed applications in Java

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M.Sc. (I.T.) 8th Semester

Course: 803: Elective 1: Smart Device Computing Using iOS

Course Code	**803**
Course Title	**Elective 1: Smart Device Computing Using iOS**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The Purpose of course is to help understanding the components and structure of mobile application development using iOS. The course also provides students with the skills necessary to develop an iOS App from scratch to deploying it on the Apple Store.
Course Objective	The objective of the course is to impart knowledge of Swift and Apple iOS application Design and Development.
Course Outcomes	CO1 : Students will be able to learn about latest design concepts, controls and components of iPAd/ iPhone application development. CO2 : Students will be able to learn the different design patterns and UIControls in iOS with Swift programming. CO3 : Students will be able to learn about data persistence, services and data manipulation techniques.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Knowledge of Object Oriented Programming is desirable.
Course Outcome	The primary learning outcome for this course is that students will be able to design and create iOS apps. Students will leverage Swift, the iOS SDK, and Apple developer tools. With iOS as the platform, students will learn Object-oriented programming, Design Patterns, Type Systems, Functional Language features, user interface design, best practices in programming, and problem analysis.

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M.Sc. (I.T.) 8th Semester

Course: 803: Elective 2: Smart Device Computing Using Android

Course Code	**803**
Course Title	**Elective 2: Smart Device Computing Using Android**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	Purpose of Course is help students to understand the components and structure of mobile application development framework of Android. The course also provides students with the skills necessary to develop an Android App from scratch to deploying it on the Google App Store.
Course Objective	Learn the basic and important design concepts and issues of development of mobile applications. Understand the capabilities and limitations of mobile devices. Write applications for the platforms used, simulate them, and test them on the mobile hardware where possible.
Course Outcomes	CO1 : Students will be able to learn about latest design concepts, controls and components of mobile application development in Android. CO2 : Students will be able to develop android applications using local database SQLite and integrate webservices in Android. CO3 : Students will be able to learn about different android services like background services, location based services, google maps etc.
Mapping between COs with PSOs	
Pre-requisite	Basic programming knowledge of Java and Event handling
Course Outcome	Course Outcome is student will design and develop user Interfaces for the Android platform by applying Java programming concepts to Android application development and will be familiar with technology and business trends impacting mobile applications. Competent with the characterization and architecture of mobile applications

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.T.) 8th Semester

Course: 804: Artificial Intelligence

Course Code	804
Course Title	Artificial Intelligence
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	This course makes students learn to develop solutions for solving various artificial intelligence based problem using PROLOG
Course Objective	To provide background knowledge of AI and to prepare students for further studies in AI
Course Outcomes	CO1 : Students will be able to learn about concepts of AI and intelligent agent. CO2 : Students will be able to learn various searching techniques,game playing techniques etc. CO3 : Students will be able to learn about knowledge representation and use it in ML, NLP, Expert System etc.
Mapping between COs with PSOs	
Pre-requisite	Significant experience in programming , knowledge of data structures and mathematical concepts
Course Outcome	After learning this course, students will be able to understand, identify and solve artificial intelligence problems, understand NLP and ML

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.T.) 8th Semester

Course: 805: Practical 17

Course Code	805
Course Title	Practical 17
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2019
Purpose of Course	The course provides practical knowledge of web application development using JAVA technologies like JSP, Servlets, JSF, EJB, JMS, JPA, etc.
Course Objective	The course prepares students to develop web applications using JAVA based frameworks.
Course Outcomes	CO1 : Students will be able to develop web applications using JAVA based frameworks and design patterns. CO2 : Students will be able to implement java security and enterprise java security with authentication and authorization. CO3 : Students will be able to implement web services, REST services and REST patterns in their web applications.
Mapping between COs with PSOs	
Pre-requisite	Object Oriented Programming Concepts and Core JAVA
Course Outcome	After completion of this course, students will be able to develop web applications using JAVA.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.T.) 8th Semester

Course: 806: Practical 18

Course Code	**806**
Course Title	**Practical 18**
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2019
Purpose of Course	The course provides practical knowledge of application development for smart devices using iOS or Android.
Course Objective	The course prepares students to develop applications for smart devices using iOS or Android.
Course Outcomes	**Elective 1** CO1 : Students will be able to develop simple applications with playground tools in XCode. CO2 : Students will be able to develop GUI applications with XCode IDE. CO3 : Students will be able to develop location based services using various frameworks. **Elective 2** CO1 : Students will be able to develop android applications using the latest design concepts, controls and components. CO2 : Students will be able to develop applications using the local database-SQLite and integrate webservices in android. CO3 : Students will be able to create applications using background services, location services, google maps, etc.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Basic Programming Concepts
Course Outcome	After completion of this course, students will be able to develop applications for smart devices using iOS or Android.

M.Sc. (I.T.) 8th Semester

Course: 807: Part Time Project 2

Course Code	807
Course Title	Part Time Project 2
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2019
Purpose of Course	The project work is introduced to make students implement their theory and practical knowledge they learned during this semester to solve real life problems for software applications.
Course Objective	To help students to develop software applications using Java Enterprise Edition.
Course Outcomes	CO1 : Students will be able to develop multi layered and MVC based Java applications. CO2 : Students will be able to apply Software engineering concepts to solve real world problems. CO3 : Students will be able to apply database related concepts to design database for the project.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Knowledge of Object Oriented Programming, Web Technology Fundamentals, Software Engineering.
Course Outcome	After completion of this course, students will be able to develop software applications.

M.Sc. (I.T.) 9th Semester

Course: 901: Internet of Things

Course Code	**901**
Course Title	**Internet of Things**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	The purpose of this course is to provide way to understand concept of Internet of Things (IoT) Architecture, various protocols and implementation of IOT Applications.
Course Objective	To provide understanding of IoT application development process, IOT reference architecture, concept of data communication in IoT and usage of development platforms & Tools.
Course Outcomes	CO1 : Students will be able to learn about role of embedded system in IOT CO2 : Students will be able to learn about connectivity of IOT with Internet, Cloud etc. CO3 : Students will be able to learn to collect sensor data in real time environment and develop machine to machine communication.
Mapping between COs with PSOs	
Pre-requisite	Basic concepts of Programming and Computer Network
Course Outcome	After completion of this course students will be able to understand IOT reference architecture and IoT application development process.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.T.) 9th Semester

Course: 902: Machine Learning using Python

Course Code	902
Course Title	Machine Learning using Python
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	This course helps students to understand and implement Machine Learning concepts using Python language.
Course Objective	To impart a comprehensive knowledge of Python language and machine learning concepts.
Course Outcomes	CO1 : Students will be able to learn how to evaluate models generated from data CO2 : Students will be able to design and implement various machine learning algorithms for real-world problems using Python programming language. CO3 : Students will be able to learn Regression Techniques and Advanced ML using Python libraries.
Mapping between COs with PSOs	
Pre-requisite	Basic concepts of Programming, Mathematical and Statistics
Course Outcome	After completing the course student will be able to develop programs using Python language and implement supervised and unsupervised machine learning algorithms.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.T.) 9th Semester

Course: 903: Cloud Computing

Course Code	**903**
Course Title	**Cloud Computing**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	This course helps students to understand concepts of Cloud Computing and Micro Service Architecture implementations.
Course Objective	To impart knowledge of Cloud Computing concepts and cloud services for application development, deployment and management on cloud.
Course Outcomes	CO1 : Students will be able to learn about cloud infrastructure and architectures. CO2 : Students will be able to learn concepts of cloud computing and basic services of AWS, Azure and GCP CO3 : Students will be able to learn about microservices architecture and devOps toolchain.
Mapping between COs with PSOs	
Pre-requisite	Basic concepts of Programming, Operating System and Networking
Course Outcome	Students will get knowledge of Cloud Computing concepts along with development, deployment and management of application(s) using Micro Service Architecture.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.T.) 9th Semester

Course: 904: Business Intelligence

Course Code	904
Course Title	Business Intelligence
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	This course helps students to provide practical knowledge of Business Intelligence.
Course Objective	To impart theoretical and practical knowledge of Data Warehouse, Data Mining and Data Visualization.
Course Outcomes	CO1 : Students will be able to learn about concepts of database warehousing and data mining. CO2 : Students will be able to learn about data mining using DMX in SSAS. CO3 : Students will be able to perform data visualization using SSRS and power BI.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	RDBMS
Course Outcome	Students will be able to perform ETL from any data source, create multidimensional cube or tabular data, perform data mining and data visualization.

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M.Sc. (I.T.) 9th Semester

Course: 905: Practical 19

Course Code	**905**
Course Title	**Practical 19**
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2020
Purpose of Course	The purpose of the course is to provide practical knowledge of IoT and Machine Learning algorithms.
Course Objective	The objective of the course is to impart knowledge of implementation of IoT and Machine Learning algorithm.
Course Outcomes	CO1 : Students will be able to understand the fundamental issues and challenges of machine learning: data, model selection, model complexity, etc. CO2 : Students will be able to design and implement various machine learning algorithms using real world data sets. CO3 : Students will be able to use real IoT protocols for device to device communication
Mapping between COs with PSOs	
Pre-requisite	Basics concepts of Embedded system, applied mathematics and statistics.
Course Outcome	After completion of this course, students will be able to develop IoT based applications and implement Machine Learning algorithms.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.T.) 9th Semester

Course: 906: Practical 20

Course Code	906
Course Title	Practical 20
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2020
Purpose of Course	The purpose of this course is to provide practical knowledge of Business Intelligence and application development using Micro Services Architecture.
Course Objective	The objective of the course is to impart practical knowledge of Data Warehouse, Data Mining, Data Visualization and application development using Micro Services Architecture.
Course Outcomes	CO1 : Students will be able to develop REST/Event based applications using micro services architecture. CO2 : Students will be able to deploy the applications using devOps toolchain. CO3 : Students will be able to perform data transformation of different formats of data and create multidimensional data using SSAS and MDX and data visualizations with SSRS and PowerBI.
Mapping between COs with PSOs	
Pre-requisite	Basic concepts of RDBMS and Programming
Course Outcome	Student will be able to perform ETL from any data source, create multidimensional cube or tabular data, perform data mining and data visualization using latest Microsoft tools and technologies. Furthermore, students will be able to develop applications using Micro Services Architecture.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.T.) 9th Semester

Course: 907: Part Time Project 3

Course Code	907
Course Title	Part Time Project 3
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2020
Purpose of Course	The purpose of this course is to develop skills to solve real world problems using Mobile / MEAN stack / IoT / BI / Cloud technologies.
Course Objective	The objective of this course is to acquaint students for the development of software application based on Mobile / MEAN stack / IoT / BI / Cloud.
Course Outcomes	CO1 : Students will be able to develop projects using Mobile/ Mean Stack/ IoT/ BI/ Cloud Technologies. CO2 : Students will be able to apply Software engineering concepts to solve real world problems. CO3 : Students will be able to apply database related concepts to design database for the project.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Fundamental of software application development
Course Outcome	After completion of this course, students will be able to develop and demonstrate software applications based on Mobile / MEAN stack / IoT / BI / Cloud technologies.

M.Sc. (I.T.) 10th Semester

Course: 1001: Project

Course Code	1001
Course Title	Project
Credit	25
Teaching per Week	-
Minimum weeks per Semester	15 (Including Practical Work, Examination, Preparation, Holidays etc.)
Effective From	June 2020
Purpose of Course	To acquaint students with technological practices followed in the IT industry by making them work on project for 6 months.
Course Objective	To familiarize students with IT projects development and management practices in industry.
Course Outcomes	CO1 : Students will be able to develop software applications in industry. CO2 : Students will be able to apply Software Engineering concepts to solve real world problems. CO3 : Students will be able to apply database related concepts to design database for projects.
Mapping between COs with PSOs	
Pre-requisite	Fundamental of software application development
Course Outcome	After completion of this course, students will be ready to work as an IT professional.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Master of Science (Information and Communication Technology)

Name of Program	**Master of Science (Information and Communication Technology)**
Abbreviation	**M.Sc. (I.C.T.)**
Duration	**2 Years**
Eligibility Criteria	Graduate in the discipline of computer application / computer science / computer engineering / Information Science / Information Technology
Objective of Program	To prepare human resource for cutting edge technologies in the field of ICT.
Program Outcome	**PO1 : Fundamental Knowledge Enrichment** Program trains students with the core computer science and Information Technology (IT) knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development. **PO2 : Critical Thinking Development** The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem. **PO3 : Advanced Emerging Technology Awareness** The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry. **PO4 : Advanced Tools Usage** The program teaches the students to apply the advanced tools to solve real world problems. **PO5 : Nurturing Project Planning and Management Capabilities** The program trains students for designing and conceptualizing the software architecture, planning and managing the product development process of complex and live software projects. It also makes students understand the decision making for selection of an appropriate project management capabilities. **PO6 : Real World Problem / Project Development** Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready. **PO7 : Team Work and Leadership Development** Trains students to work in a team and also to take leadership of the of the project management team.
Program Specific Outcomes	PSO1 : Students will learn various aspects of Digital Communication Technologies. PSO2 : Students will be able to utilize knowledge of communication technologies in I.C.T. based applications.

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PSO3 : Students will be able to solve complex programming problems.
PSO4 : Students will be able to learn emerging technologies and apply them for the development of Web applications, Mobile applications, IOT applications, etc....
PSO5: Students will develop necessary Entrepreneur and Technical skills to start their own business in I.C.T domain.

Mapping between POs and PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5
PO1					
PO2					
PO3					
PO4					
PO5					
PO6					
PO7					

Medium of Instruction: English

Program Structure: Semester 1

Course Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
ICT 101	Java Web Development	4	0	4	3 Hrs	70	30	100
ICT 102	Enterprise Java	4	0	4	3 Hrs	70	30	100
ICT 103	Information Security and Applications	4	0	4	3 Hrs	70	30	100
ICT 104	Advanced Computer Network	4	0	4	3 Hrs	70	30	100
ICT 105	Practical 1	-	3	3	2 Hrs	70	30	100
ICT 106	Practical 2	-	3	3	2 Hrs	70	30	100
ICT 107	Part Time Project 1	-	3	3	-	70	30	100
	Total	16	9	25		490	210	700

Program Structure: Semester 2

Course Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
ICT 201	C#.NET	4	0	4	3 Hrs	70	30	100
ICT 202	Advanced .NET	4	0	4	3 Hrs	70	30	100
ICT 203	Elective : Elective 1 Smart Device Computing using iOS Elective 2 Smart Device Computing using Android	4	0	4	3 Hrs	70	30	100
ICT 204	Digital Communication	4	0	4	3 Hrs	70	30	100
ICT 205	Practical 3	-	3	3	2 Hrs	70	30	100
ICT 206	Practical 4	-	3	3	2 Hrs	70	30	100
ICT 207	Part Time Project 2	-	3	3	-	70	30	100
	Total	16	9	25	-	490	210	700

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M.Sc. (I.C.T.) 1st Semester

Course: 101: Java Web Development

Course Code	**101**
Course Title	**Java Web Development**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	This course helps students to get an idea about how to use Java in Web Programming .
Course Objective	The objective of the course is to make them understand and implement the Web Oriented Project Development Model of Java.
Course Outcomes	CO1 : Students will be able to learn Object Oriented Programming concepts for problem solving using Java. CO2 : Students will be able to learn about Java design patterns. CO3 : Students will be able to learn about the java web application framework, ReactJS and REST services.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Understanding of OOPS concept and its implementation by Java Language
Course Outcome	Students will be able to develop Web Application in Java

M.Sc. (I.C.T.) 1st Semester

Course: 102: Enterprise Java

Course Code	**102**
Course Title	**Enterprise Java**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	This course helps students to understand and develop large scale enterprise , distributed and scalable applications using Java.
Course Objective	The objective of the course is to provide in depth knowledge of all JAVA API which contribute to the development of high performing , secure , distributed and scalable applications in line with the current trends in the software industry.
Course Outcomes	CO1 : Students will be able to learn about enterprise business logic, enterprise security and database persistence. CO2 : Students will be able to learn about concepts of web services, REST services and REST design patterns. CO3 : Students will be able to learn about enterprise java security with SSL certificates, securing REST services with authentication and SSL.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Knowledge of Java Language and Web Application concepts
Course Outcome	Students will be able to develop large scale and distributed applications in Java.

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M.Sc. (I.C.T.) 1st Semester

Course: 103: Information Security and Applications

Course Code	103
Course Title	Information Security and Applications
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	This course is designed to provide students with the necessary background and knowledge to identify security risks and develop appropriate counter measures.
Course Objective	To provide an understanding of principal components, major issues, technologies, and basic approaches in information security.
Course Outcomes	CO1 : Students will be able to learn and implement various cryptographic algorithms using private and public cryptography. CO2 : Students will be able to learn basic of block chain technology including hash algorithms. CO3 : Students will be able to learn working of various security protocols like IPSec,SSL, SSH,etc...
Mapping between COs with PSOs	
Pre-requisite	Basic concepts of computer network
Course Outcome	This would help students to understand vulnerability of applications and encourage them to embed security in various applications they develop.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.C.T.) 1st Semester

Course: 104: Advanced Computer Network

Course Code	104
Course Title	Advanced Computer Network
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	To provide the student with knowledge of advanced network concepts and techniques
Course Objective	The course objective is to introduce internetworking, routing and network management concepts.
Course Outcomes	CO1 : Students will be able to understand the fundamental concepts of data communication and computer networking. CO2 : Students will be able to analyze the topological and routing strategies for an IP based networking infrastructure and understand how errors detected and corrected that occur in transmission. CO3 : Students will be able to understand transport layer functions and know about different application layer protocols.
Mapping between COs with PSOs	
Pre-requisite	Basic concepts of computer network
Course Outcome	Students will be able to understand the principles for implementing a multi layer network, management systems for the network and routing of information throughout the network.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.C.T.) 1st Semester

Course: 105: Practical 1

Course Code	105
Course Title	Practical 1
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The course provides practical knowledge of web application development using ReactJS and Java technologies like JSP, Servlests, JSF, etc.
Course Objective	The course prepares students to develop web applications using ReactJS and JAVA based frameworks.
Course Outcomes	CO1 : Students will be able to develop web applications using Java technologies like JSP, Servlests, JSF, etc. CO2 : Students will be able to develop web applications using Java based frameworks. CO3 : Students will be able to develop web applications using ReactJS.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Object Oriented Programming Concepts and Core Java
Course Outcome	After completion of this course, students will be able to develop web applications using ReactJS and JAVA.

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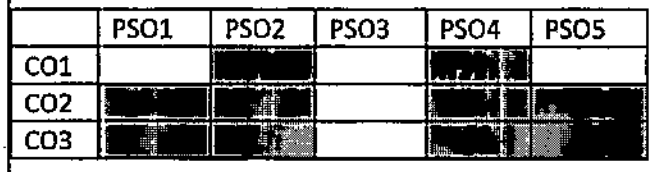
M.Sc. (I.C.T.) 1st Semester

Course: 106: Practical 2

Course Code	**106**
Course Title	**Practical 2**
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The course provides practical knowledge of building business logic for enterprise applications using JAVA technologies like EJB, JMS, JPA, etc.
Course Objective	The course prepares students to design enterprise application oriented components using JAVA technologies like EJB, JMS, JPA, etc.
Course Outcomes	CO1 : Students will be able to develop enterprise application using EJB, JMS, JPA, etc. CO2 : Students will be able to create web services and REST services. CO3 : Students will be able to develop enterprise application using java security with SSL certificates, securing REST services with authentication and SSL.
Mapping between COs with PSOs	
Pre-requisite	Object Oriented Programming Concepts and Core JAVA
Course Outcome	After completion of this course, students will be able to design and develop enterprise level components using JAVA technologies like EJB, JMS, JPA, etc.

M.Sc. (I.C.T.) 1st Semester

Course: 107: Part Time Project 1

Course Code	107
Course Title	Part Time Project 1
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The project work is introduced to make students implement their theory and practical knowledge they learned during this semester to solve real life problems for software applications.
Course Objective	To help students to develop software applications using Java Enterprise Edition.
Course Outcomes	CO1 : Students will be able to develop multi layered and MVC based Java applications. CO2 : Students will be able to apply Software Engineering concepts to solve real world problems. CO3 : Students will be able to apply database related concepts to design database for the project.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Knowledge of Object Oriented Programming, Web Technology Fundamentals, Software Engineering.
Course Outcome	After completion of this course, students will be able to develop software applications.

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M.Sc. (I.C.T.) 2nd Semester

Course: 201: C#.NET

Course Code	201
Course Title	C#.NET
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	This course helps students to understand C#.NET language concepts and to use them in any real world .NET application.
Course Objective	To impart knowledge of C#.NET features and its object oriented paradigm for application development.
Course Outcomes	CO1 : Students will be able to understand the object-oriented concepts using C#.NET application. CO2 : Students will be able to develop, implement and creating Applications using C#.Net Framework and .NET core. CO3 : Students will be able to learn and implement LINQ and database integration using C#.
Mapping between COs with PSOs	
Pre-requisite	Object Oriented Fundamental, .NET Framework, ADO.NET
Course Outcome	Students will be able to develop applications using C#.NET language.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.C.T.) 2nd Semester

Course: 202: Advanced.NET

Course Code	202
Course Title	**Advanced.NET**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	This course helps students to understand and use .NET advanced concepts with real world .NET applications.
Course Objective	To impart knowledge of Enterprise application development using .NET Framework.
Course Outcomes	CO1 : Students will be able to understand the concepts of ASP.NET advanced features. CO2 : Students will be able to learn RESTful web services and web API using .NET Framework and .NET Core. CO3 : Students will be able to learn MVC architecture and Web Application Frameworks using .NET Framework, .NET Core and Angular.
Mapping between COs with PSOs	
Pre-requisite	Object Oriented Fundamental, ADO.NET, ASP.NET
Course Outcome	Students will be able to develop enterprise applications using .NET advanced concepts.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.C.T.) 2nd Semester

Course: 203: Elective 1: Smart Device Computing Using IOS

Course Code	**203 Elective 1**
Course Title	**Smart Device Computing Using iOS**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The Purpose of course is to help understanding the components and structure of mobile application development using iOS. The course also provides students with the skills necessary to develop an iOS App from scratch to deploying it on the Apple Store.
Course Objective	The objective of the course is to impart knowledge of Swift and Apple IOS application Design and Development.
Course Outcomes	CO1 : Students will be able to understand the key programming concepts of Swift programming and develop iOS iPhone/iPad applications. CO2 : Students will be able to learn the different design patterns and UIControls in Swift programming. CO3 : Students will be able to learn about different data persistence and data manipulation techniques in Swift programming.
Mapping between COs with PSOs	
Pre-requisite	Knowledge of Object Oriented Programming is desirable.
Course Outcome	The primary learning outcome for this course is that students will be able to design and create iOS apps. Students will leverage Swift, the iOS SDK, and Apple developer tools. With iOS as the platform, students will learn Object-oriented programming, Design Patterns, Type Systems, Functional Language features, user interface design, best practices in programming, and problem analysis.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.C.T.) 2nd Semester

Course: 203: Elective 2: Smart Device Computing Using Android

Course Code	203 Elective 2
Course Title	Smart Device Computing Using Android
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, practical , examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	Purpose of Course is help students to understand the components and structure of mobile application development framework of Android. The course also provides students with the skills necessary to develop an Android App from scratch to deploying it on the Google App Store.
Course Objective	Learn the basic and important design concepts and issues of development of mobile applications. Understand the capabilities and limitations of mobile devices. Write applications for the platforms used, simulate them, and test them on the mobile hardware where possible.
Course Outcomes	CO1 : Students will be able to learn about the latest design concepts, controls and components of mobile application development in Android. CO2 : Students will be able to develop applications using the local database-SQLite and integrate webservices in Android. CO3 : Students will be able to learn about different types of services like background services, location based services and google maps.
Mapping between COs with PSOs	
Pre-requisite	Basic programming knowledge of Java and Event handling
Course Outcome	Course Out come is student will design and develop user Interfaces for the Android platform by applying Java programming concepts to Android application development and will be familiar with technology and business trends impacting mobile applications. Competent with the characterization and architecture of mobile applications

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.C.T.) 2nd Semester

Course: 204: Digital Communication

Course Code	204
Course Title	Digital Communication
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	This course provides in depth knowledge of mobile communication architecture and wireless communication technologies.
Course Objective	To make student understand Mobile technology architecture, its components and Wireless communication technology.
Course Outcomes	CO1 : Students will be able to understand data, signals and transmission media. CO2 : Students will be able to analyze various transmission media, data encoding, modulation and multiplexing techniques. CO3 : To impart knowledge about cellular communication, wireless enterprise and new generation mobile services.
Mapping between COs with PSOs	
Pre-requisite	Fundamental knowledge of network communication
Course Outcome	This course enables students to understand mobile communication. This course will also help students to understand the role of various wireless communication systems and select particular type of communication technology for their application development.

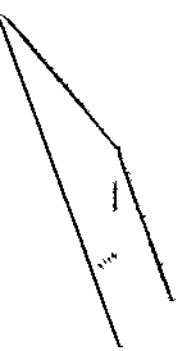
	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	[redacted]				
CO2	[redacted]			[redacted]	
CO3	[redacted]				

M.Sc. (I.C.T.) 2nd Semester

Course: 205: Practical 3

Course Code	205
Course Title	Practical 3
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The course provides practical knowledge of C#, LINQ, .NET Core, MVC and AngularJS.
Course Objective	The course prepares students to develop AngularJS and .NET based web applications.
Course Outcomes	CO1 : Students will be able to develop C#.NET framework and C#.NET core based practicals. CO2 : Students will be able to do practicals using MVC5 and MVC.NET core. CO3 : Students will be able to do practical using RESTful web API and angular.
Mapping between COs with PSOs	
Pre-requisite	Object Oriented Programming Concepts
Course Outcome	After completion of this course, students will be able to develop AngularJS and .NET based web applications.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2				[redacted]	
CO3	[redacted]	[redacted]		[redacted]	[redacted]



M.Sc. (I.C.T.) 2nd Semester

Course: 206: Practical 4

Course Code	206
Course Title	Practical 4
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The course provides practical knowledge of application development for smart devices using iOS or Android.
Course Objective	The course prepares students to develop applications for smart devices using IOS or Android.
Course Outcomes	**Elective 1** CO1 : Students will be able to develop simple applications with playground tools in XCode. CO2 : Students will be able to develop GUI applications with XCode IDE. CO3 : Students will be able to develop location based services using various frameworks. **Elective 2** CO1 : Students will be able to develop android applications using the latest design concepts, controls and components. CO2 : Students will be able to develop applications using the local database-SQLite and integrate webservices in android. CO3 : Students will be able to create applications using background services, location services, google maps, etc.
Mapping between COs with PSOs	
Pre-requisite	Basic Programming Concepts
Course Outcome	After completion of this course, students will be able to develop applications for smart devices using iOS or Android.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1		[redacted]		[redacted]	[redacted]
CO2				[redacted]	[redacted]
CO3				[redacted]	[redacted]

M.Sc. (I.C.T.) 2nd Semester

Course: 207: Part Time Project 2

Course Code	207
Course Title	Part Time Project 2
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The project work is introduced to make students implement their theory and practical knowledge they learned during this semester to solve real life problems for software applications.
Course Objective	To help students to develop software applications using .NET and popular JavaScript based frameworks.
Course Outcomes	CO1 : Students will be able to develop project in .NET technology. CO2 : Students will be able to apply Software Engineering concepts to solve real world problems. CO3 : Students will be able to apply database related concepts to design database for the project.
Mapping between COs with PSOs	
Pre-requisite	Knowledge of Object Oriented Programming, Web Technology Fundamentals, Software Engineering.
Course Outcome	After completion of this course, students will be able to develop software applications.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

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M.Sc. (I.C.T.) 3rd Semester

Course: 301: Introduction to Python and Data Science

Course Code	**301**
Course Title	**Introduction to Python and Data Science**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2019
Purpose of Course	The purpose of this course is to provide introductory knowledge of Python programming and data science.
Course Objective	The objective of the course is to impart practical knowledge of Python programming and data science concepts.
Course Outcomes	CO1 : Students will be able to understand python language in detail using different python libraries. CO2 : Students will be able to perform data wrangling and statistical operations using python. CO3 : Students will be able to learn to mine data using python libraries.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Basic concepts of Programming, Mathematics and Statistics.
Course Outcome	Students will be able to apply data science concepts using Python programming language.

M.Sc. (I.C.T.) 3rd Semester

Course: 302: Data Communication and Internet of Things

Course Code	**302**
Course Title	**Data Communication and Internet of Things**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	The purpose of this course is to provide understanding of data communication and IoT.
Course Objective	The objective of this course is to provide knowledge of data communication, understanding of IoT application, IoT development process, IoT reference architecture, security issues of IoT and embedded system role in IoT.
Course Outcomes	CO1 : Students will be able to analyze and understand the vision of IoT. CO2 : Students will be able to learn about embedded devices for IOT, data organizing and data processing in IOT. CO3 : Students will be able to learn about business models in IOT and security requirements.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Pre-requisite	Computer Network
Course Outcome	Students will get knowledge of Data communication and IoT concepts.

M.Sc. (I.C.T.) 3rd Semester

Course: 303: Cloud Computing

Course Code	303
Course Title	**Cloud Computing**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	This course helps students to understand concepts of Cloud Computing and Micro Service Architecture implementations.
Course Objective	To impart knowledge of Cloud Computing concepts and cloud services for application development, deployment and management on cloud.
Course Outcomes	CO1 : Students will be able to learn about cloud infrastructure and architectures. CO2 : Students will be able to learn concepts of cloud computing and basic services of AWS, Azure and GCP CO3 : Students will be able to learn about microservices architecture and devOps toolchain.
Mapping between COs with PSOs	
Pre-requisite	Basic concepts of Programming, Operating System and Networking
Course Outcome	Students will get knowledge of Cloud Computing concepts along with development, deployment and management of application(s) using Micro Service Architecture.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.C.T.) 3rd Semester

Course: 304: Open Source Web Development

Course Code	304
Course Title	**Open Source Web Development**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	The purpose of the course is to provide knowledge of web application development using open source web technologies.
Course Objective	The objective of the course is to impart knowledge of web application development using PHP and Nodejs.
Course Outcomes	CO1 : Students will be able to learn web development using PHP. CO2 : Students will be able to learn web development in NodeJS and express. CO3 : Students will be able to develop backend applications using PHP & NodeJS and implement version control using Git.
Mapping between COs with PSOs	
Pre-requisite	Basic concepts of Web development and Object-Oriented programming
Course Outcome	Students will be able to develop web application using PHP and NodeJS.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.C.T.) 3rd Semester

Course: 305: Practical 5

Course Code	ICT 305
Course Title	Practical 5
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	The purpose of this course is to provide introductory practical knowledge of Python programming, data science and application development using Micro Services Architecture.
Course Objective	The objective of the course is to impart practical knowledge of Python programming, data science concepts and application development using Micro Services Architecture.
Course Outcomes	CO1 : Students will be able to develop the application using the python programming. CO2 : Students will be able to develop data analysis models using the data science concepts. CO3 : Students will be able to develop the application using Micro Service Architecture.
Mapping between COs with PSOs	
Pre-requisite	Basic concepts of Programming, Mathematics and Statistics.
Course Outcome	Students will be able to apply data science concepts using Python programming language and will be able to develop applications using Micro Services Architecture.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1			[redacted]	[redacted]	[redacted]
CO2			[redacted]	[redacted]	[redacted]
CO3	[redacted]	[redacted]		[redacted]	[redacted]

M.Sc. (I.C.T.) 3rd Semester

Course: 306: Practical 6

Course Code	ICT 306
Course Title	Practical 6
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	The purpose of the course is to provide practical knowledge of web application development using open source web technologies.
Course Objective	The objective of the course is to impart practical knowledge of web application development using PHP and NodeJS.
Course Outcomes	CO1 : Students will be able to develop web applications in PHP. CO2 : Students will be able to develop web applications in NodeJS and express. CO3 : Students will be able to develop backend applications using PHP & NodeJS and version control using git practically.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1				[redacted]	[redacted]
CO2	[redacted]	[redacted]		[redacted]	[redacted]
CO3	[redacted]	[redacted]		[redacted]	[redacted]

Pre-requisite	Basic concepts of Object-Oriented programming
Course Outcome	Students will be able to develop web application using PHP and NodeJS.

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M.Sc. (I.C.T.) 3rd Semester

Course: 307: Part Time Project 3

Course Code	ICT 307
Course Title	Part Time Project 3
Credit	3
Teaching per Week	3 Hrs
Minimum weeks per Semester	15 (Including Practical Work, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	The purpose of this course is to develop skills to solve real world problems using Mobile / MEAN stack / IoT / PHP / Data Science / Cloud technologies.
Course Objective	The objective of this course is to acquaint students for the development of software application based on Mobile / MEAN stack / IoT / PHP / Data Science / Cloud.
Course Outcomes	CO1 : Students will be able to develop project in Mobile / Full stack / IOT / PHP / Data science / Cloud technology. CO2 : Students will be able to apply Software Engineering concepts to solve real world problems. CO3 : Students will be able to apply database related concepts to design database for the project.
Mapping between COs with PSOs	
Pre-requisite	Fundamental of software application development
Course Outcome	After completion of this course, students will be able to develop and demonstrate software applications based on Mobile / MEAN stack / IoT / PHP / Data Science / Cloud technologies.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

M.Sc. (I.C.T.) 4th Semester

Course: 401: Project

Course Code	ICT 401
Course Title	Project
Credit	25
Teaching per Week	-
Duration	-
Minimum weeks per Semester	15 (Including Practical Work, examination, preparation, holidays etc.)
Effective From	June 2020
Purpose of Course	To acquaint students with technological practices followed in the IT industry by making them work on project for 6 months.
Course Objective	To familiarize students with IT projects development and management practices in industry.
Course Outcomes	CO1 : Students will be able to apply digital communication technologies and develop software applications in industry. CO2 : Students will be able to apply software engineering concepts to solve real world problems. CO3 : Students will be able to apply database related concepts to design databases for projects.
Mapping between COs with PSOs	
Pre-requisite	Fundamental of software application development
Course Outcome	After completion of this course, students will be ready to work as an ICT professional.

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					

Prin. Dr. Patralekha A. Barad

(M.Sc., M.Ed., Ph.D.)

Principal – Shri S. R. Patel B.Ed. College, Anita (Kim)

Dean, Faculty of Education, VNSGU Surat

Veer Narmad South Gujarat University,Surat

Bachelor of Education (B.Ed.)

Academic Council Dt.05-02-2022 2 years

Item No. 31 Encl. 22

Programme Outcomes

On successful completion of the two-year B.Ed. programme, student teachers will be able to ….

Programme Name	Programme Outcomes
PO 1	-Understand the concept, nature, principles, process, elements and the strategies of Education.
PO 2	-Understand various educational issues in the context of diverse socio cultural & Multilingual Indian Society.
PO 3	- Face the challenging of social, political and technological issues.
PO 4	- Equip with skills and competencies for changing technological needs and global concerns.
PO 5	-Build and Practice the values and ethics needed for teaching profession.

Programme Specific Outcomes

On successful completion of the two-year B.Ed. programme, student teachers will be able to ....

PSO 1	- Understand the nature, purpose, influencing factors and problems of secondary education in contemporary issues.
PSO 2	- Achieve excellence on academic, social, mental, physical, moral, and cultural fronts.
PSO 3	- Understand various level learners, their needs, and interest and peculiar problems in Inclusive classroom setup.
PSO 4	- Master the methods and techniques of teaching different subjects with innovative attitude.
PSO 5	- Use Information Communication Technology resources, on-line as well as off line for day-to-day classroom teaching.
PSO 6	- Develop problem solving ability through action research
PSO 7	- Connect theoretical curricular areas with practicum through field work and assignments
PSO 8	- Enhance their professional capacities through EPC courses (abilities of communication, reflection, art, aesthetics, theatre, self expression and ICT.)
PSO 9	- Understand the classroom diversities and deal with diverse learners in inclusive classroom setup, education for human rights and women empowerment, environmental education and developing online content.
PSO10	- Build skills and abilities of communication, reflection, art, aesthetics, theatre, self expression and ICT.
PSO 11	- Provide socially relevant education.

Course Outcomes

Course Name	**Course Outcomes**
101. Childhood and Growing up	After completion of the course, the student teacher will be able to:- - Understand children of different ages by interacting and observing them in diverse social, economic and cultural context. - Explain childhood, child development and adolescence. - Understand learning as divergent process. -Understand the role of the family and the school in the child and adolescence development. - develop critical understanding of the different Social, Educational and Cultural contexts at the core of the exploration of childhood. - develop an understanding of the different aspects of a Child with diverse abilities in the Social, Cultural and Political context of India. - understand the role of different agencies in the healthy development of children. - develop an understanding of the meaning and concept of Adult Education. - Understand with chief characteristics of an adult learner, different methods and evaluation techniques of adult learning.
102. Contemporary India and Education	- Understand the importance of Indian Education Systems. - Know the internal Educational Patterns and its components. -Understand the meaning, nature, scope, functions and principles of Educational Administration of a School. - develop an understanding about various components of school Administration. - develop an understanding of leadership qualities and accountability to be maintained by the different school personnel like headmaster, teacher etc. .- Understand the students with specific problems of school management.

103. Language Across the Curriculum	- Understand the nature and structure of language. - Appreciate the relationship between language, mind and society. - Understand the process of language acquisition and learning. - Develop the understanding of different language skill. - Develop sensitivity and competency towards catering to a multilingual audience in Schools.
104. Understanding Discipline & School Subject	-Understanding Education and its Definition, concept, aims in reference of School. - Understand the School-Education and its importance. -know about different Approaches within schools. - Understand various school subjects correlations.
EPC-1. Reading and Reflection on Text	- Able to read and respond to a variety of texts in different ways and also learn to think together and appreciate- - Develop meta-cognitive awareness to become conscious of their own thinking processes as they engage with diverse texts. - Enhance their capacities as readers and writers by becoming participants in the process of reading.
201. Teaching and Learning	- Gain an understanding of the concept, meaning, aims and functions of Education. - Reflect upon the thoughts of Indian and Western thinkers on Education and explore their implications for practices in schools. - Examine the issues and concerns of education in the socio-economic context of India. -Appreciate the need and relevance of the course in being a humane teacher. - Create awareness in student-teachers with respect to the range of cognitive capacities and affective processes in human learners. - Develop an understanding of different theoretical perspectives of learning with a focus on cognitive views of learning. - Familiarize with the concept and nature of Intelligence, Personality and Adjustment.

202 & 203. Pedagogy of a School Subjects	- Understand the importance of various Teaching Methods & Techniques. - Develop creative designs and plans to teach pedagogical subjects to understanding the diverse need of the learners. - Understand the concepts of pedagogical subjects - Interrogate existing terminology, constructs and notions of pedagogic practice, such as child-centered learning, discovery learning, activity-based learning, intelligence (IQ) etc. - Understand epistemological questions of subject matter and how they unfold in the study of pedagogical approaches.
204. Assessment for Learning.	After completion of the course, the student-teachers will be able to:- - Understand meaning and purpose of assessment and its role. - Discuss Assessment, evaluation, test, examination, measurement, continuous and comprehensive assessment and grading. - Comprehend the Process of Assessment and its tools and techniques. - Describe the Quantitative and qualitative aspects of assessment. - Understand the Purposes of reporting, Teacher competencies in assessment tools, Data analysis, feedback and reporting. - Psycho-social and political dimensions of assessment and dynamic assessment processes. - Understand the critical role of assessment for more confident and creative learners and in enhancing learning.
EPC-2. Drama & Art in Education.	- Develop basic understanding of different Art forms ñ impact of Art forms on the human mind. - Enhance artistic and aesthetic sensibility of learners to enable them to respond to the beauty in different Art forms, through genuine exploration, experience and free expression. - Develop skills for integrating different Art forms across school curriculum at secondary level. - Create awareness of the rich cultural heritage, artists and artisans.

301. Knowledge & Curriculum	- Understand meaning of Epistemological terminologies and Understand their similarities and differences between them. - Familiarize with ideologies related to child centered education. - Understand the changes in education in the context of society, culture and modernization - Familiarize with the perspectives of Education - Understand various school activities and class room interaction with reference to multi culture and democracy - Understand the National, Global & Secular paradigms of education - Plan the activities to make value based education
302 Creating Inclusive Schools	- Develop understanding the culture, policy and way of functioning of an inclusive school - Examine the definitions of 'deficiency' and 'Inclusion' in the psychosocial contexts of equal education. - Analyse the policies & initiative programmes related to inclusion - Know the obstacles related to the policies and methods regarding 'Learning and Participation' in the inclusive school. - Identify and address the diverse needs of all learners. - Develop capacity for creating an inclusive School. -Appreciate various inclusive practices to promote Inclusion in the classroom.
EPC-3. Critical Understanding of ICT	- Understand the effective use of ICT tools, software applications and digital resources. - Familiarize them with the understanding and skills of integration of ICT in teaching learning, evaluation and management of an institution. -Develop the skill of organising and creating her/his own digital resources. - Practice safe, ethical and legal ways of using ICT. - Use ICT for making classroom processes more inclusive and supportive in addressing multiple learning abilities.

EPC-4. Understanding the Self	- Familiarize with the methods of Self-Value Development. - Understand the concept of Self & Society. - Evaluate the Self in terms of a Teacher, Guardian and the Management Members. - Develop life skills to understand self. - Develop the capacity for sensitivity, sound communication and ways to establish peace and harmony. - Develop the capacity to facilitate personal growth and social skills in their own students. -Recall and reflect on their own educational journeys and become conscious of factors that have shaped their aspirations and expectations. -.Become more conscious of their responses to experiences, observations of life situations, as also of ideas and issues that arise in their minds, and to thus develop their capacity for reflection.
401. Gender, School & Society	- Sensitize towards Gender Inequality in the society. - Familiarize with the Institutes creating Gender Inequality - Ponder and act in direction of Gender Inequality remove. - Develop understanding of some key concepts and terms and relate them with their context in understanding the power relations with respect to Educating and Education. - Develop an understanding of the paradigm shift from Women studies to Gender Studies based on the historical backdrop. -Reflect on different theories of Gender and Education and relate it to power relations. - Analyse the institutions involved in Socialisation processes and see how socialisation practices impact power relations and identity formation

402. Knowledge & Curriculum	- Understand the concept of curriculum - Understand the various interpretation of curriculum - Understand the steps and process of curriculum construction - Become familiar with the basis of curriculum - Understand the role of curriculum in teaching learning process - Able to clarify the interrelation among curriculum, syllabus & text book - Evaluate co-curricular activities with reference to new society formation - Understand the co-relation among power, principles and curriculum - Become familiar with comparative analytical process - Develop the skill of curriculum evaluation.
403. Guidance & Counseling	- Understand the concept of Guidance and Counselling. - Understand the types of Guidance and Counselling. - Know the competencies of the Guidance and Counselling. - Familiarize with the techniques and tools of Guidance and Counselling and their uses. - Know the role of a teacher for the professional guidance to the students. - Identify the students facing the specific problems and provide the required guidance.
403. Environmental Education	- Understand the environment meaning, importance and its elements. - Understand natural resources, its sustainable use and its conservation. - Know the bio-diversity. - Understand the growing energy needs for increasing population. - Understand the deferent types of pollution and its cusecs. - Understand the universal problems of environment.

403. Population Education	- Gain knowledge regarding the present situation related to population. - Understand the meaning and importance of Population Education - Develop the understanding of the scope of Population Education. - Evaluate the result and effect of population growth on society - Know the factors which are affecting population growth - Know the effect of population growth on Health and Nutrition. - Know trends of Population growth in Gujarat and India. - Develop understanding of various methods and techniques about Population Education.
403. Education and Mental Measurement	- Understand the basic scientific concepts and practices in the educational and mental measurement. - Develop skills and competencies in the student teachers for the use of techniques in the field. - Interpret the result of educational measurement - Tabulate and to find out some standard meaning from the raw score by using statistical procedure. - Use of measuring devices.
403. Value Education	- Develop the theoretical understanding of values. - Understand the importance of values in self – development. - Understand the concept of Value Education. - Know the internal conflicts among values and the remedies for them. - Familiarize with the methods of Value Development. - Evaluate the values of a Teacher, Guardian and the Management Members

403. Vocational Education	- Know the meaning and concept of vocational education. - Know the objectives and goal of vocational education. - Understand the principles and need of vocational education. - Know the problems and contemporary trends of vocational education. - Know the programmes and institutions of vocational education. - Understand the need of vocational education with reference to 21th century.
403. Health and physical education	- Understand the characteristics of physically fit & mis-fit person. - Prepare a report from the discussion with doctor about maintaining physical health - Arrange yoga workshops - Arrange demonstration / exhibitic on de addiction - Arrange a discussion on understanding sex education - Arrange meditation workshops - Plan and implementation of Sports Day.
403. Education for peace	- Take experiments and projects for contribution of peaceful and non-violent society. - Know and understand the concept of peace. - Know and apply the strategies to remove the conflicts emerge at personal and social level. -Understand and live the importance of loving and peaceful relationship among people in the institutions. -Develop the attitude and skills for removing conflicts.
Field Work / Practicum	- Visits to schools and other field sites, and the analysis of a variety of records of learning and teaching. Examples of children‘s work records that capture a variety of images of learning and teaching. - Measuring Intelligence of the pupil‘s by use of Intelligence tests. Preparation of lesson plans in terms of Micro, Simulated and Mega lessons.

School Internship	-The Student teachers will be equipped to cater to diverse needs of learners in schools. - To know about real situation in classroom teaching and familiers about school environment. - To Writing a reflective journal on observation of regular class room teaching with respect to pedagogical practices and class room management techniques used by the teachers. - To Reflection on roles and responsibilities of different school staff and Critical study of the infrastructural facilities, namely Library , Laboratories, Playground, Canteen, Sports facilities, Seminar Halls, Auditorium etc which are available in the school. - To undertake the field activities pertaining to the practicals during internship.
Viva-Voce	-To share reflections about their learning and their growth in the Habits of Mind. - A teacher can interview a student, or students can interview classmates. -To Set aside time at the end of a learning sequence of lesson, a unit, a school day, or a school year to question each other about what has been learned. - To Guide students to look for ways they can apply their learning to future settings. - Interviews also provide teachers and students with opportunities to model and practice a variety of habits: listening with understanding and empathy, thinking and communicating with clarity and precision, and questioning and posing problems.

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Med_CO

Master of Education

Name of Program	**Master of Education**
Abbreviation	**M.Ed.**
Duration	**2 Years**
Eligibility Criteria	**Entry/Admission Qualifications for M. Ed.** 1. B. Ed. 2. B. A. B.Ed., B.Sc., B.Ed. 3. B.El.Ed. 4. D.El.Ed. with an undergraduate degree (With 50% marks in each) Reservation and relaxation for SC/ST/OBC/PWD and other applicable categories shell be as per the rules of Gujarat State Government.
Objective of Program	The core objective of M.Ed. programme is to prepare students for productive career in teaching. The 2 year M.Ed. programme is designed to provide opportunities for students to know, understand and extend knowledge of perspective courses such as philosophy, sociology, history, political economy, psychology of education, education studies and curriculum studies. The students also extend as well as deepen their knowledge and understanding of tool courses such as basic and advanced level of research, academic writing, communication skills, ICT skills, self development in specialise in selected areas such as gender and society, inclusive education, yoga education, academic writing. The M.Ed. programme provides focussed exposure and experiences in teacher education through internship. The students also develop research capacities, leading to specialization in either elementary education or secondary education.
Program Outcome	The students will: **PO1** : Know, understand and apply educational concepts **PO2** : Know, understand and apply the perspective courses such as philosophy, sociology, history, political economy, psychology of education and education studies. **PO3** : Understand and apply tool courses such as basic and advance level educational research, academic writing, communication skills, educational technology, ICT skills and self development focusing on gender and society, inclusive education and mental and physical well being through yoga. **PO4** : Understand, explore and analyze pre-service and in-service teacher education programme through field based internship programme in school and teacher education institutions. **PO5** : Understand, apply and synthesize knowledge of curriculum pedagogy and assessment, policy, economics, planning, educational management, educational administration, education for differently abled and educational technology at elementary or secondary level. **PO6** : Train students to conduct research, develop research skills and write research thesis.

	PO7 : Prepare students for profession of teacher education
Program Specific Outcomes	The students will: **PSO1 :** Know the basic concepts, assumptions, theories and principles of various areas of education and disciplinary knowledge **PSO2 :** Express understanding and competencies of perspective courses, tool courses, teacher education, research and elementary or secondary education **PSO3 :**Apply learnt educational concepts of perspective courses, tool courses, teacher education, research and elementary or secondary education **PSO4 :** Explore and evaluate teacher education programme **PSO5 :**Develop research capacities and skills related to independent study of literature, research, academic writing, professional communication and team work **PSO6 :**Develop teaching competencies, skills and teaching aptitiude essential for teaching profession in close mentorship of a faculty member **PSO7 :** Analyze, evaluate and develop self by reflection on mental and physical well being through various modalities such as yoga, gender, society, education, psycho-social dimension of exclusion, inclusive education etc.
Mapping between POs and PSOs	
Medium of Instruction	Gujarati
Program Structure	Semester 1 to 4

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
PO1							
PO2							
PO3							
PO4							
PO5							
PO6							
PO7							

M.Ed. Semester 1

Paper Code	Subjects /Curriculum component	Credit	T cr	P cr	Internal Assessment (marks)	External Assessment (marks)	Total Marks
	Semester – I						
101 PCC	Philosophy of Education	4	3	1	30	70	100
102 PCC	Education Studies	4	3	1	30	70	100
103 TECC	Teacher Education – I: Pre-Service and In-Service Teacher Education	4	3	1	30	70	100
104 TCC	Introduction to Research Methods	4	3	1	30	70	100
105 TCP	Seminar on current issues in Education	1		1	25		25
106 TCP	ICT Skills	1		1	25		25
107 TCP	Yoga	1		1	25		25
108 RPD	Dissertation Guidance(Research Proposal Preparation, Draft of First Chapter)	1		1	25		25
	Total	**20**	**12**	**08**	**220**	**280**	**500**

M.Ed. Semester-1

Course: 101: Philosophy of Education

Course Code	**101**
Course Title	**Philosophy of Education**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016

Purpose of Course	The purpose of the course is to make the student understand the nature and functions of philosophy and make use of philosophical methods for studying educational phenomenon and do logical analysis, interpretation and synthesis of concepts, propositions and philosophical assumptions.
Course Objective	To make students acquainted with concepts, methods, postulates, assumptions of philosophy and its applications.
Course Outcomes	The students will: **CO1** Explain the nature and functions of philosophy of education. **CO2** Do Logical analysis, interpretation and synthesis of various concepts, proposition and philosophical assumptions about educational phenomena. **CO3** Explain and use of philosophical methods in studying educational data. **CO4** Do Critical appraisal of contributions made to education by prominent educational thinkers– Indian and Western. **CO5** Analyse and evaluate the fundamental postulates of the discipline of philosophy of Education and its relevance for Education.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							

Pre-requisite	Basics of Education and thinking
Course Content	**UNIT – I** **PHILOSOPHY OF EDUCATION : ITS NATURE** 1. Philosophy A Liberal Discipline. It's Nature, Definition, Concept. 2. Methods, Content and Function – Speculative, Normative, Analytical 3. Relationship between Philosophy and Education Meaning, Definitions and Significance of Philosophy 4. Fundamental philosophical Issues: **Meta physical Issues :** The issues with special reference to ontology, cosmology and theology **Epistemological Issues:** The issues special reference to Reality &objectivity, worth of knowledge and Truth. **Axiological Issues:** Ethics and aesthetic branch. Its origin and scope. **UNIT – II** **PHILOSOPHICAL VIEWS ON EDUCATION** 1. Historical Overview and Key Concepts: Indian perspectives of Education: Vidya, Gnyan and Darshan. Western perspectives of Education: Information, Knowledge and Wisdom. 2. Education for Science, Values and Citizenship Education for Science

	Education for Values :Moral, Spiritual, Intellectual, Social Education for Citizenship 3. Education for Self, Society and Humanities 4. Contribution of Modern Thinkers: Mahatma Gandhi, Tagore, J. Krishnamurti, John Dewey **UNIT – III SCHOOLS OF PHILOSOPHY-I** 1. Sankhya, Vedanta, Upnishad, Bhagavadgita, Buddhism, Jainism, Islam and Christianity **UNIT – IV SCHOOLS OF PHILOSOPHY-II** 1. Idealism, Realism, Pragmatism, Existentialism, Naturalism, Humanism
Reference Books	1. Aggrawal, S. (2007). *Philosophical Foundations of Education.* Delhi, Authorprees. 2. Aggrawal J. C.(2007). *Philosophical and Sociological perspectives of education.* Delhi : Shipra Publication. 3. Aggrawal J. C. & Gupta, S. (2007). *Philosophical Foundations of Education.* Delhi : Shipra Publication. 4. Baggini, J. & Stabgroom, J. (2007). *Great Thinkers A-Z.* Delhi Vivabooks Pvt. Ltd. 5. Bharathy, V. D. (2004). *Educational Philosophies of Swami Vivekananda and John Dewey.* New Delhi : A. P. H. Publishing Corporation. 6. Brubacher, John S. (1983). *Modern Philosophies of Education.* NewsDelhi:Tata Mc Graw Hill Publishing Co. Ltd. 7. Chaube, S. P. (1993). *Educational Philosophies in India.* Mumbai:Vikas Publishing House Ltd. 8. Moore, T. W. (1982). *Philosophy of Educayiomn : An Introduction.*London: Routedge & Kegan Paul. 9. Pathak, R. P. (2007). *Philosophical Perspectives of Education.* NewDelhi Atlantic Publication. 10. Rusk, R. R. (2007). *Philosophical Bases Bases of Education.* New*Delhi Surjeet Publication.* 11. Rusk, R. R. (2007).*The Doctrines of Great Educators* . New DelhiSurjeetPublication. 12. Sharma, R. N. (2007). *Philosophy and Sociology of Education.* NewDelhi:Surjeet Publication 13. Sodhi, Sandhu and Singh, (1988). *Philosophy of Education.* AmbalaCantThe Indian Publication.
Teaching Methodology	Group discussion, Self Study, Seminar/ Presentation, Group and individual field-based assignments
Evaluation Methods	30% Internal assessment based on class attendance, participation, assignment, internal examination, etc. 70% External based on semester end University examination

Course: 102 – Education studies

Course Code	**102**
Course Title	**Education studies**
Credit	4
Teaching per Week	5Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make student understand education as a phenomenon, its various dimensions and apply it and gain insight in challenges and opportunities in education.
Course Objective	To make students acquainted with concept of education as phenomenon, its dimensions and its applications.
Course Outcomes	The students will: **CO1** To understand education as a phenomenon and as a field of study with a body of knowledge. **CO2** To examine education as interdisciplinary knowledge **CO3** To analyze the philosophical, social and the cultural dimensions of education. **CO4** To analyze the concept and the relevance of education by reflecting on various educational thoughts and visions **CO5** To understand and apply knowledge with institutions, systems and structures of education and flagging the contemporary concerns of education policy and practice. **CO6** To gain insight on various challenges and opportunities in education.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							
CO6							

Pre-requisite	Basics of Mathematics, Data Structures
Course	**UNIT – I Education as a Discipline**

Content	1.	Concept of Education studies
	2.	Education as a discipline of study
	3.	Education as a socially contrived system influenced by social, cultural, political, economic, and technological factors.
	4.	Meaning and importance of: School, Curriculum, Syllabus, Textbook, Assessment, Pedagogy, Morality, Value, knowledge, construction of knowledge
	5.	Pedagogical Content Knowledge (PCK)
	6.	Interdisciplinary nature of education; relationships with disciplines/subjects suchas philosophy, psychology, sociology, management, and economics.
	UNIT – II	**Philosophical and Sociological Understanding of Education**
	1.	Critical analysis of thoughts of following great thinkers with reference to curriculum, textbook, pedagogy, school, assessment, discipline: Shri Aurobindo, Gijubhai Badheka, Acharya Vinoba Bhave, Nanabhai Bhatt, Jawaharlal Nehru, Dr. Zakir Husain
	2.	Role of school, parents, peer group and the community in socialization of a child.
	3.	Social purpose of Education; Understanding Indian society with reference multicultural and multilingual classrooms; Educational challenges of a multicultural and a multilingual society
	4.	Concept of Inclusive education and learning disabilities
	5.	Role of Education in addressing cultural diffusion, cultural acculturation, Cultural lag, and Cultural conflict.
	UNIT – III	**Education in Independent India**
	1.	Aims of education (National Focus Group 2006 by NCERT)
	2.	Relevance of the aims of education in context of democratic and secular society.
	3.	Constitutional provisions of education
	4.	Present structure of education in India from pre-school to university.
	5.	Functions of UGC, NCERT, NCTE, CBSE, SCERT & DIET.
	6.	Introduction of various schemes (Aims-Objectives-features): Sarva Shiksha Abhiyan (SSA), Rashtriya Madhyamik Shiksha Abhiyan (RMSA), Rashtriya Uchchatar Shiksha Abhiyan (RUSA), Gunotsav.
	UNIT – IV	**Challenges and Opportunities of Education**
	1.	Concept, merits and demerits of Globalization, Privatization (in context of education)
	2.	Right to Education Act, 2009 and its implementation
	3.	Education for sustainable development
	4.	Education of socio-economically deprived groups
	5.	ICT in Education
	6.	Teacher's autonomy and academic freedom
	7.	Human Rights and Education
Reference Books	1.	Archambault, R.D.(1965).*Philosophical analysis and Education*.London: Routledge and KeganPaul.
	2.	Banrs, J.A. (1996), *Cultural diversity and education: Foundations curriculum and teaching (4th ed.)* Boston: Alynand, Becon.

3. Beyer,L.E.(Ed.)(1996) *Creating demo critic classrooms: The struggle integrate theory and Practice.* New York: Teachers College Press.
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6. Bruner, J.S. (1996),*The Culture of education.* Cambridge, M.A.: Harward University Press.
7. Bruubacher, John S.; (1969) *Modern Philosophies of education,* Tata McGraw-Hill, Publishing Company Pvt LTD, New Delhi.
8. Butchvarov, P.(1970) *The Concept of knowledge.* Evanston, Illinois, North Western University Press.
9. Deaden. R.F (1984):*Primary Education.* Routledge K Kegan & Paul
10. Dearden R. F. (1984). *Theory andpractice in Education.* Rutledge Kegan& Paul
11. Debra Heyes, Martin Hills, Pam Chistieand Bob Lingard (2007)*Teachers and schooling: Makinga Difference,*Allen and Unwin, Australia.
12. Delors, Jacques, etal; (1996). *Learning: The Treasure within report of the international commission on education for21st century, UNESCO.*
13. Dewey, J. (1916/1977). *Democracy and Education*: An introduction to the philosophy of education. New York: Macmillan.
14. *International Encyclopediaof Education.* (1994) 2nd edition. Vol.10.Perganon Press.
15. Matheson, David(2004).*An Introduction to the study of education* (2nd edition). David Fulton Publish.
16. Peters, R.S. (1967), The Concept of education, Routledge, United Kingdom.
17. Peters, R.S (ed), (1975): *The Philosophy of Education,* Oxford University Press, and London.
18. Peters, R.S. (ed), (1975). *Concept of Education.* Oxford University Press, London.
19. Shulman, L. S. (1986). Those Who Understand: Knowledge Growth in Teaching. *Educational Researcher, 15(2),* 4–14. Retrieved from http://www.jstor.org/stable/1175860
20. National Focus Group. (2006). *Aims of Education* (Rep.).New Delhi: NCERT. Retrieved from http://www.ncert.nic.in
21. અંધારિયા, આર. (૨૦૦૪) શિક્ષણશાસ્ત્રીય વિષયવસ્તુનું જ્ઞાન (PCK). શિક્ષણશાસ્ત્ર ભવન,&એલ.એલ. કાકડિયા બી.એડ.કોલેજ (સં.),*ગુણવત્તાકેન્દ્રી શિક્ષક પ્રશિક્ષણ* (પૃ. ૩૮ – ૪૬).ભાવનગર: શ્રી સરદાર પટેલ સેવા ટ્રસ્ટ.
22. જોશી, બી. નેવ્યાસ, જે. (સં.). (૨૦૦૬).*શિક્ષણાયન (ચંદ્રકાન્ત ભોગાયતાના*

	*લેખો).*ભાવનગર: એજ્યુકેશનલ ટેકનોલોજી ફોરમ. 23. દવે, જે. (૨૦૦૪).*ભારતીય ચિન્તકોનું શિક્ષણ ચિન્તન (૨જી આ).* અમદાવાદ: યુનિવર્સિટી ગ્રંથનિર્માણ બોર્ડ. 24. પરમાર, જી. ને સિંહ, એ. (૨૦૧૨).*શિક્ષણના સિદ્ધાંતો (૩જી આ).* સુરત: ન્યુ પોપ્યુલર પ્રકાશન. 25. ભાલ, જે. ડી. (૧૯૯૭).*ભારતની શિક્ષણ વ્યવસ્થા (૨જી આ).* અમદાવાદ: યુનિવર્સિટી ગ્રંથનિર્માણ બોર્ડ. 26. રાવલ, એન. વી. (૨૦૧૧).*કેળવણીની તાત્વિક અને સમાજશાસ્ત્રીય આધારશિલાઓ.*અમદાવાદ: નીરવ પ્રકાશન. 27. શાહ, બી. વી. ને શાહ, કે. (૧૯૯૯).*શિક્ષણનું સમાજશાસ્ત્ર (૨જી આ).* અમદાવાદ: યુનિવર્સિટી ગ્રંથનિર્માણ બોર્ડ. 28. http://ssa.nic.in 29. http://mhrd.gov.in/rmsa 30. http://www.rmsaindia.org/en 31. http://mhrd.gov.in/rusa 32. http://www.gunotsav.org 33. http://mhrd.gov.in/rte_rules
Teaching Methodology	Group discussion, Self Study, Seminar/ Presentation, Group and individual field-based assignments, Library readings on selected theme followed by group discussion
Evaluation Methods	30% Internal assessment based on class attendance, participation, assignment, internal examination, etc. 70% External based on semester end University examination

Course: 103 - Teacher Education-1 Pre-service and In-service teacher education

Course Code	103
Course Title	**Teacher Education-1 Pre-service and In-service teacher education**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective	June 2016

From	
Purpose of Course	The purpose of the course is to make the student understand the objective of teacher education programme, historical background of teacher education in India and role of agencies regulating teacher education. So that students gain insight in the process of teacher education programme.
Course Objective	To make students acquainted with concepts of teacher education its history and current status of teacher education programme.
Course Outcomes	The students will: **CO1** To gain insight on concept, objectives and status of pre-service and in service teacher education and get aware of historical background of teacher education in India **CO2** To understand the different modes of teacher education and examine the current pre-service and in-service teacher education programme in terms of various policy documents. **CO3** To critically examine the role of various regulating agencies of teacher education **CO4** To explain structure, administration, curriculum methodology and evaluation procedure of pre-service teacher training. **CO5** Apply methods and techniques for transaction of teacher education curricula. **CO6** Gain insight into the status of teachers in-service education in the country **CO7** Develop understanding of the process of in-service teacher education
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							
CO6							
CO7							

Pre-requisite	Basics of teacher education
Course Content	**UNIT – I** **Concept, and Components of Pre-service Teacher Education** 1. Concept, Need and Importance of Pre-Service Teacher Education 2. Objectives of Pre-Service Teacher Education for pre-primary, elementary, Secondary & senior secondary stages. 3. Pre-Service Teacher education in Pre and Post-independent India. 4. Modes of Pre-Service Teacher Education (Concept, merits and demerits) : Face to Face and Distance

	5.	Curriculum Components of Pre-Service Teacher Education (With reference to NCFTE-2009)
	6.	Teacher preparation for special needs education and physical education.
	UNIT – II	**Organizational Pattern and Curriculum Transaction in Pre-Service Teacher Education**
	1.	Present Norms and Standards of Pre-Service Teacher Education Programmes leading to following degree/Diploma: • Diploma in Preschool Education (DPSE) • Diploma in Elementary Education (D.El.Ed.) • Bachelor of Elementary Education (B.El.Ed.) • Bachelor of Education (B.Ed.) : Full time, Part Time and • through Open and Distance Learning System • 4-year Integrated programme leading to B.A. B.Ed./ B.Sc. B.Ed. • Master of Education (M.Ed.) • B.Ed. M.Ed. (3 year Integrated)
	2.	Teacher Education Curriculum transaction practices proposed in NCFTE 2009.
	3.	Internship (Concept, objectives,the existing practices, organization and duration. Activities and experiences in pre-internship, internship and post-internship)
	4.	Evaluation in Pre-Service Teacher Education: • The Comprehensive Nature of Evaluation • The Evaluation Protocol • Tools (observational records, Reflective journal, checklists, portfolio assessment, open-ended questionnaire and interviews, oral andwritten tests, Rubrics, self-appraisal)
	UNIT – III	**In-service Teacher Education: Concept, Modes, and Models**
	1.	Concept, Significance, and Objectives of In-service Teacher Education.
	2.	Thrusts and Limitations of In-Service Teacher Education
	3.	Qualities and characteristics of an effective in-service teacher educator
	4.	Modes of in-service teacher education (Concept, merits and Limitations): face-to-face, online and mixed mode
	5.	Models of in-service teacher education (Concept, merits and Limitations): induction, one shot, recurrent, cascade, multi-site, school based and course work.

	UNIT – IV	**Planning and organizing In-service Teacher Education**
	1.	Organization and role of following agencies in the field of In-serv education: UGC, NCERT, NCTE, GCERT, CTE, IASE, DIET, CAS
	2.	Planning and organization of various In-service teacher education pr conducted under SSA and RMSA.
	3.	Designing an In-service teacher education programme (basic gu terms if purpose, duration, resources required, budget, training c training material and assessment)
	4.	Common problems of organizing In-service teacher education progra
Reference Books	1.	Association of Indian Universities (2000) *Teacher Education in India: Selection from University News-6.*New Delhi: Association of Indian Universities
	2.	Beck, Clive & Clark Kosnik Albany (2006): *Innovations in Teacher Education: A Social Constructivist approach.*State University New York.
	3.	Cohen Louis, Minion Lawrence & Morrison, Keith (2004). *A Guide of Teaching Practice* (5th edition). Rout ledge Falmer. London and New York.
	4.	Day, C. & J. Sachs, J. (Ed.) (2004): *International Handbook on the Continuing Professional Development of Teachers.* Maidenhead, Brinks Open University Press.
	5.	Joyce, B:, and Weal, M. (2003).*Modals of Teaching* (7th Ed.). Boston: Allyn& Bacon.
	6.	J. S. Raput&Walia, K. (2002). *Teacher Education in India.* Sterling Publishers Private Limited: New Delhi.
	7.	Kauts, A. (2013). Quality Concerns in Teacher Education. Patiala:21st Century Publications
	8.	Kothari, R. G. and Patel, J, B (2011).*In-service Teacher Education: Training programme for Primary Teachers.* Germany:VDMVerlag Publisher
	9.	Lampert, M. (2001).*Teaching problems and the problems of teaching.*New Haven: Yale University Press.
	10.	Linda Darling Hammond & John Bransford (ed) (2005): *Preparing Teachers for a Changing World.* Jossey-Bass, San Francisco.
	11.	Loughran, John (2006): *Developing a Pedagogy of Teacher education Understanding Teaching and Learning about Teaching.* Routledge: New York.
	12.	Mangla, S. (2002).*Teacher Education- Trends and Strategies.*New Delhi: Sage Publishers.
	13.	Martin, D. J. & Kimberly S. Loomis (2006): *Building Teachers: A constructivist approach to introducing education.* Wadsworth Publishing, USA.
	14.	Mohanty, J. (2007). *Teacher Education.*New Delhi: Deep and Deep publications Pvt. Ltd.
	15.	Mohammad Miyan (2004). *Professionalisation of Teacher Education.* Mittal Publications. New Delhi.
	16.	National Curriculum Framework for Teacher Education (Publication). (2009). New Delhi: National Council for Teacher Education.
	17.	NCTE. (1998). *Policy Perspective in Teacher Education- Critique and Documentation.* NCTE New Delhi.

	18. NCTE (1998): *Policy Perspectives in Teacher Education.* New Delhi. 19. NCTE (1998). *Competency Based and Commitment Oriented Teacher Education for Quality School education: Pre-Service Education.* New Delhi. 20. Ram, S. (1999): *Current Issues in Teacher Education.* Sarup& Sons Publications, New Delhi. 21. Rao, DigumartiBhaskara (1998). *Teacher Education in India.* Discovery Publishing House. New Delhi. 22. Rao, D. (2002).*Teacher Education in India.* New Delhi: DiscoveryPublishing House. 23. Rao, D. (2003).*Teachers in a changing world.* New Delhi: Discovery Publishing House. 24. Rao, R.(2004). *Methods of Teacher Training.* New Delhi Discovery Publishing House. 25. Reimers, Eleonora Villegas (2003): *Teacher Professional development:an international review of the literature.* UNESCO: IIEP, Paris. 26. Sharma, R.A. (1999).*Teacher Education.*Meerut: Loyal Book Depot. 27. Sharma, S. P. (2003). *Teacher Education.*New Delhi: Kanishka Publishers (Pvt.)Ltd. 28. Sharma, S. R. (2008). *A Handbook of teacher Education.*New Delhi: Sarup& sons. 29. Siddiqui, M.A. (1993). *In-Service Education of Teachers.*NCERT. New Delhi. 30. Siddiqui, M.A. (2008). *In-Service Teacher Education.* NewDelhi: A PH Publishing Corporation. 31. Srivastava R. C. (1996). *Teacher Education in india issues and perspectives.* NewDelhi: Regency Publications. 32. Yadav, M.S. & Lakshmi, T.K.S. (2003): *Conceptual inputs for Secondary Teacher Education: The instructional Role.*India, NCTE. 33. જોશી, બી.ને વ્યાસ, જે. (સં.). (૨૦૦૬).*શિક્ષણાયન (ચંદ્રકાન્ત ભોગાયતાના લેખો).* ભાવનગર: એજ્યુકેશનલ ટેકનોલોજી ફોરમ. 34. રાવલ, એન. વી. (૨૦૧૪).*શિક્ષક શિક્ષણ.* અમદાવાદ: નીરવ પ્રકાશન. 35. શિક્ષણશાસ્ત્ર ભવન, &એલ. એલ. કાકડિયા બી.એડ.કોલેજ (સં.). (૨૦૦૪).*ગુણવત્તાકેન્દ્રી શિક્ષક પ્રશિક્ષણ.* ભાવનગર: શ્રી સરદાર પટેલ સેવા ટ્રસ્ટ.
Teaching Methodology	Group discussion, Self Study, Seminar/ Presentation, Group and individual field-based assignments
Evaluation Methods	30% Internal assessment based on class attendance, participation, assignment, internal examination, etc. 70% External based on semester end University examination

Course: 104 – Introduction to Research Methods

Course Code	**104**
Course Title	**Introduction to Research Methods**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make the student understand educational research, research methodology, types of research, sampling, tools of research so that they can conduct the educational research
Course Objective	To make students acquainted with concepts of educational research so that that they conduct educational research in appropriate manner.
Course Outcomes	The students will: **CO1** Understand research, educational research, its nature and functions, theories of research work **CO2** Acquaint the students with the methodology of Research of various types. **CO3** Learn to interpret educational research and Investigation and to examine the scope of application of research **CO4** Describe the meaning, nature, purpose, scope, areas, and types of research in education. **CO5** Explain the characteristics and research paradigms in education: quantitative, qualitative and mixed research, review literature to plan a research study, dentify research problem and develop research proposal **CO6** Explain about probability and non probability sampling design and select appropriate one for a research study **CO7** Explain various tools of research, design and procedure for collection of data and conduct research.
Mapping between COs with PSOs	
Pre-requisite	Basics of Research and Statistics
Course Content	**UNIT-I EDUCATIONAL RESEARCH: BASIC CONCEPT** 1. Educational research : Meaning, Nature, Scope, and Areas 2. Types of educational research: basic & applied research,

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							
CO6							
CO7							

	evaluation research and action research, and their characteristics 3. Research paradigms in education: qualitative, mixed and, quantitative, and their characteristics 4. Source of knowledge, The scientific approach to the knowledge generation: basic assumptions of science, scientific methods,Theory,nature and functions, The principle of evidence 5. Qualities of good research and researcher- Constraints and limitations **Unit – II Selection of Research Problem and Drafting the Proposal** 1. Sources of research problem 2. Characteristics of a good research problem 3. Criteria used in a selecting the problem 4. Narrowing the range of the problem 5. Drafting a research proposal **UNIT–III APPROACHES OF QUALITATIVE AND QUANTITATIVE RESEARCH** 1. Quantitative: experimental, Survey, Developmental, Correlational, Historical. 2. Qualitative Research: Case Study, Ethnography, Narratives. Phenomenology. **UNIT –IV SAMPLING & TOOLS** 1. Population and Sample and its type, sample size, sampling error,representative and biased samples, characteristics of a good sample 2. Characteristics of Good Research tools 3. Standardisation of a tool 4. Standardized tests, Questionnaire, Opinionnaire, Interview,Observation, Rating Scale, Attitude Scale, Check List
Reference Books	1. Banerjee, N. P. (1993). *Strategies of Educational Research.* Ambala Cantt The Associated Publication. 2. Best, J. W. and Kahn, J. (1997). *Research in Education* (7th ed.) New Delhi: Prentice-Hall of India Ltd. 3. Borg, B.L.(2004). *Qualitative Research Methods.* Boston: Pearson. 4. Borg, W. R. & Gall, M. R. (1983). *Educational research An Introduction(4th Ed.).* New York : Longman. 5. Bogdan, R.C. and Biklen, S. K.(1998). *Qualitative Research for*

Education An Introduction to Theory and Methods. Boston MA : Allyn and Bacon.

6. Bryman, A. (1988). *Quantity and Quality in Social Science Research.* London: Routledge
7. Chandra, S. S. & Sharma, R. K. (2002). *Research in Education.* New Delhi: Atlantic Publishers & Distributors.
8. Charles, C.M. and Merton, C.A.(2002). *Introduction to Educational Research*. Boston:Allyn and Bacon.
9. Cohen, L. & Manion, L. (1994). *Research Methods in Education.* London: Routledge.
10. Correy, S. M. (1953). *Action Research to Improve schoolPractices.*Columbia University.
11. Cohen, L and Manion, L. (1994). *Research Methods in Education.*London: Routledge.
12. Creswell, J.W. (2002). *Educational Research.* New Jersey: Upper Saddle River .
13. Creswell, J.W (1994). *Research Design*. London: Sage Publications.
14. Creswell, J.W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches.* (2nd ed.) Thousand Oaks: Sage.
15. Creswell, J. W. (2007). *Qualitative inquiry and research design.* London: Sage Publications.
16. Denzin, N. K. & Lincoln, Y. S. (Editors). (2000). *Handbook of Qualitative Research*(2nd Ed.). Thousand Oaks : Sage Publication.
17. Diener, E. and Crandall, R. (1978). *Ethics in Social and Behavioural Research.* Chicago:University of Chicago Press.
18. Dillon , W.R. and Goldstein, M. (1984). *Multivariate Analysis Methods and Applications.*New York : John Wiley and Sons.
19. Gay, L.R. and Airasian, P.(2003). *Educational Research.* New Jersey Upper Saddle River.
20. Good, C. V. (1972). *Essentials of Educational Research.* New York McGraw Hill Book Co.
21. Gupta, S. (2005). *Research Methodology and Statistical Techniques.* New Delhi : Deep & Deep Publication.
22. Keeves J.P. (ed.) (1988. *Educational Research, Methodology and Measurement: An International Handbook* .Oxford :Pergamon.
23. Kelly, A. & Lesh, R. (2000). *Handbook of Research Design in Education.* Erlbaum Associates.
24. Kerlinger, F. N. (2007). *Foundations of Behavioural Research*(10thEd.). Delhi : Surjeet Publication.
25. Koul, L. (2002). *Methodology of Educational Research*(3rdEd.).New Delhi: Vikas Publishing House.
26. Mangal, S. K. (2002). *Statistics in Psychology and Education*(2ndEd.).New Delhi : Prentice Hall.
27. McMillan, J. H. and Schumacher, S. (2001). *Research in Education.*New York: Longman.

	28. O'Leary, Z. (2004). *The essential guide to doing research.* London: Sage. 29. Saxena, N. R., Mishra, B. K. & Mohanty, R. K. (2003).*Fundamentals of EducationalResearch.*Meerut : Surya Publication. 30. Sharma, B. (2004). *Methodology of Educational Research.* New Delhi, Vohra Publishers & Distributors. 31. Somekh, B. & Lewin, C. (2005). *Research methods in the social sciences.* Thousand Oaks: Sage. 32. ઉચાટ, ડી. એ. (૨૦૦૯).*શિક્ષણ અને સામાજિક વિજ્ઞાનોમા સંશોધનનું પદ્ધતિશાસ્ત્ર.* રાજકોટ: ડી. એ. ઉચાટ. 33. પટેલ, આર. એસ. (૨૦૧૨).*શિક્ષણમાં સંશોધન* (ભાગ ૧ અને ૨). અમદાવાદ: જય પબ્લિકેશન. 34. શાહ, ડી.બી. (૨૦૦૬).*શૈક્ષણિક સંશોધન.* અમદાવાદ: યુનિવર્સિટી ગ્રંથનિર્માણ બોર્ડ
Teaching Methodology	Library study, Classroom discussion, Lecture, Panel discussion, Field work, etc.
Evaluation Methods	30% Internal assessment based on class attendance, participation, assignment, internal examination, etc. 70% External based on semester end University examination

Course: 106 – ICT skills

Course Code	**106**
Course Title	**ICT Skills**
Credit	1
Teaching per Week	1 Hr
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make the student understand the nature and functions of philosophy and make use of philosophical methods for studying educational phenomenon and do logical analysis, interpretation and synthesis of concepts, propositions and philosophical assumptions.

<table>
<tr><td>Course Objective</td><td>To make students acquainted with concepts, methods, postulates, assumptions of philosophy and its applications.</td></tr>
<tr><td>Course Outcomes</td><td>The students will:

CO1 Understand online searching of educational reviews from different online sources
CO2 Explain the use of statistical techniques for educational data.
CO3 Do proper citation of educational resources.
CO4 Analyse and evaluate the reviews, identify the research gap and use it for educational research.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td><td>PSO6</td><td>PSO7</td></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Pre-requisite</td><td>Basics of research and mathematical formulas</td></tr>
<tr><td>Course Content</td><td>1 Use of Shodhgana
2 Google Scholar
3 Google for M
4 APA citation
5 Calculation of Mean, Median, Mode, Chi-square etc.</td></tr>
<tr><td>Reference Books</td><td>1 Banerjee, N. P. (1993). Strategies of Educational Research. Ambala Cantt The Associated Publication.
2 Best, J. W. and Kahn, J. (1997). Research in Education (7th ed.) New Delhi: Prentice -Hall of India Ltd.
3 Borg, B.L.(2004). Qualitative Research Methods. Boston: Pearson.
4 Borg, W. R. & Gall, M. R. (1983). Educational research An Introduction(4th Ed.). New York : Longman.
5 Bogdan, R.C. and Biklen, S. K.(1998). Qualitative Research for Education An Introduction to Theory and Methods. Boston MA : Allyn and Bacon.
6 Bryman, A. (1988). Quantity and Quality in Social Science Research. London: Routledge
7 Chandra, S. S. & Sharma, R. K. (2002). Research in Education. New Delhi: Atlantic Publishers & Distributors.
8 Charles, C.M. and Merton, C.A.(2002). Introduction to Educational Research. Boston:Allyn and Bacon.
9 Cohen, L. & Manion, L. (1994). Research Methods in Education. London: Routledge.</td></tr>
<tr><td>Teaching Methodology</td><td>Classwork, Discussion, Self-Study, Assignment</td></tr>
<tr><td>Evaluation Methods</td><td>100% Internal assessment based on Assignment and practical</td></tr>
</table>

Course: 107: YOGA

Course Code	107
Course Title	**YOGA**
Credit	1
Teaching per Week	2
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make students aware about yoga. They become fit physically as well as mentally.
Course Objective	• To develop knowledge and understanding of the yoga. • To develop the habit of doing yoga in students life. • To get acquainted with the ashana and pranayama.
Course Outcomes	The Students will: CO1: Explain the concept of yoga and its benefits. CO2 : Perform different types of ashana with proper posture. CO3:Explain asthang yoga: yam, niyam, ashan, pranayama, pratyahar, dharna, dhyan, Samadhi. CO4 : Do different types of pranayama.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	■	■			■	■	■
CO2	■	■	■		■	■	■
CO3	■	■			■	■	■
CO4	■	■	■	■	■	■	■

Pre-requisite	Physically fit
Course Content	**Unit-1** Yoga and Yogic Texts • Yoga - Basic introduction • Meaning & Definition • Indian Philosophy of Yoga (Introduction of Philosophy of Yoga) • Concept of Yogic Physiology (Yogic Texts) • Various Paths of Yoga : Gyan Yoga, Bhakti Yoga, Karma Yoga, Ashtang Yoga & Hath Yoga **Unit-2**Ashtang Yoga • Yam •Niyam•Asan•Pranayam•Pratyahar•Dharna•Dhyan• Samadhi **Unit-3**Yoga Asanas and pranayama •Suryanamaskar•Asans in Sitting Posture •Asans in Standing Posture • Backward Bending Asanas• Forward Bending Asanas
Reference Books	1 Birdee GS, Legedza AT, Saper RB, Bertisch SM, Eisenberg DM, Phillips RS. (2008) Characteristics of yoga users: results of a national survey. *J Gen Intern Med* 23:1653–8. 2 Penman S, Cohen M, Stevens P, Jackson S. (2012) Yoga in Australia: results of a national survey. *Int J Yoga* 5:92–101.

	3 Tiwari S, Telles S, Goel A, Verma A. (2014) Beliefs of yoga practitioners about yoga as a science. A survey in Mumbai. *Yoga Mimamsa* 46:15–9.
Teaching Methodology	Practical session, Discussion, Self-Study
Evaluation Method	100% Internal assessment based on Assignment and practical

Course: 108 - Dissertation Guidance (Research Proposal preparation, Draft of First chapter)

Course Code	**108 RPD**
Course Title	**Dissertation Guidance (Research Proposal preparation, Draft of First chapter)**
Credit	1
Teaching per Week	2 Hr
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make the student understand the research concepts and identify proper research topic and make proposal of it and design first chapter for the same research.
Course Objective	To make students acquainted with concepts of educational research proposal preparation and draft of first chapter and its applications.
Course Outcomes	The students will: **CO1** Explain the importance of preparation of research proposal. **CO2** Prepare research proposal **CO3** Describe importance of conceptual literature for conducting research. **CO4** Prepare draft of first chapter based on conceptual literature
Mapping between COs with PSOs	
Pre-requisite	Basics of research

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							

Course Content	1. Preparation of Research proposal 2. Draft of first chapter
Reference Books	1 Banerjee, N. P. (1993). *Strategies of Educational Research.* Ambala Cantt The Associated Publication. 2 Best, J. W. and Kahn, J. (1997). *Research in Education* (7th ed.) New Delhi: Prentice -Hall of India Ltd. 3 Borg, B.L.(2004). *Qualitative Research Methods*. Boston: Pearson. 4 Borg, W. R. & Gall, M. R. (1983). *Educational research An Introduction(4th Ed.)*. New York : Longman. 5 Bogdan, R.C. and Biklen, S. K.(1998). *Qualitative Research for Education An Introduction to Theory and Methods.* Boston MA : Allyn and Bacon. 6 Bryman, A. (1988). *Quantity and Quality in Social Science Research.* London: Routledge 7 Chandra, S. S. & Sharma, R. K. (2002). *Research in Education.* New Delhi: Atlantic Publishers & Distributors. 8 Charles, C.M. and Merton, C.A.(2002). *Introduction to Educational Research.* Boston:Allyn and Bacon. 9 Cohen, L. & Manion, L. (1994). *Research Methods in Education.* London: Routledge. 10 Correy, S. M. (1953). *Action Research to Improve schoolPractices.*Columbia University. 11 Cohen, L and Manion, L. (1994). *Research Methods in Education.*London: Routledge. 12 Creswell, J.W. (2002). *Educational Research.* New Jersey: Upper Saddle River . 13 Creswell, J.W (1994). *Research Design*. London: Sage Publications. 14 Creswell, J.W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches.* (2nd ed.) Thousand Oaks: Sage.
Teaching Methodology	Classwork, Discussion, Self-Study
Evaluation Methods	100% Internal assessment based on research proposal preparation and draft of first chapter

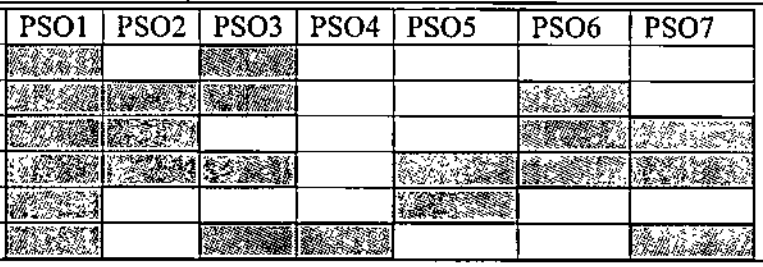
M.Ed. Semester – 2

Paper Code	Subjects /Curriculum component	Credit	T cr	P cr	Internal Assessment (marks)	External Assessment (marks)	Total Marks
	Semester – II						
201 PCC	Psychology of Learning And Development	4	3	1	30	70	100
202 PCC	Curriculum Studies	4	3	1	30	70	100
203 TECC	Teacher Education-II : Perspectives, Research and Issues in Teacher Education	4	3	1	30	70	100
204 TCC	Advanced Research Methods	4	3	1	30	70	100
205 TCP	Library Skills	1	0	1	25		**25**
206 SCCEP/SCCSP	Communication Skills	1	0	1	25		**25**
207 RPD	Dissertation Guidance (Draft of second and third Chapters)	2		2	50		**50**
	Total	**20**	**12**	08	**220**	**280**	**500**

M.Ed. Semester - 2

Course: 201 Psychology of Learning And Development

Course Code	**201**
Course Title	**Psychology of Learning And Development**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make the student capable of implementing the concepts, methods and theories of Psychology of Learning And Development and learn their implementation in education.
Course Objective	To make students acquainted with concepts of Psychology of Learning And Development and its applications.
Course Outcomes	the students will : **CO1.** Explain the meaning of Educational Psychology. **CO2.** Develop an awareness of the different schools of Psychology **CO3.** Get acquainted with the stages of growth and development; and to understand its Psychological impact. **CO4.** Identify and choose the learning theory of their choice for

	teaching. **CO5.** Get acquainted with the process of Group Dynamics in Instructional Settings.Explain Different Paradigms of Cognitive Theories **CO6.** Apply Constructivism to classroom teaching –learning process.Understand Personality development, and Adjustment and Maladjustment
Mapping between COs with PSOs	
Pre-requisite	Basics of educational psychology
Course content	**UNIT-I SCHOOLS OF PSYCHOLOGY & HUMAN DEVELOPMENT** 1. Educational Psychology : Definition and Meaning of Educational Psychology 2. Schools of Psychology with specific reference to changing Roles of teacher and Students: Vedic school, Behaviorist school, Humanistic school 3. Stages of human growth and its Psychological impact 4. Stage wise Human development : Mental, Social, Emotional **UNIT - II LEARNING** 1. **Learning** : Nature and Concept, Laws of Learning, Levels of lear Motivation 2. **Theories of learning:** Behaviorism: Trial and error-Thorndike, Classical Conditioning-Pavlov, Operant Conditioning-Skinner, Field theory-Kurt Lewin, Gestalt psychology -Kofka, Kohlar and Werthemer Theory of Hull and Tollman **UNIT-III COGNITIVE PARADIGMS AND CONSTRUCTIVISIM** 1. **The Three Cognitive Paradigms:** **Paradigm – I:Eric-Kendall** –the cellular and molecular contributions to Learning and Memory **Paradigm – II:** Cognitive Theories – **D.P. Ausubel**: Verbal Meaningful Learning, **Gagne's** conditions of learning , **J. S.Bruner:** Cognitive Theory through Discovery, **jean Piaget**:Genetic Epistemology and Cognitive Development. **Paradigm – III:** Evolutionary view of Psychology of Learning. 2. **Constructivism:** Meaning, Definition and Concept Constructivists' Approaches to Learning, Implications of Constructivism in Classroom Learning **UNIT –IV PERSONALITY AND ADJUSTMENT**

	1. Personality : Concept, development, types and measurement of personality tools and techniques. 2. Theories of Personality – Allport, Eysenck; Psychoanalytic approach of Freud, Erickson; Behaviour approach – Miller, Dollard and Bandura; Humanistic approach – Roger, Maslow 3. Adjustment and Maladjustment : Concept and Understanding, Implications for education : with respect to Special and Gifted Children.
References	1. Ambron, S.R (1981) *Child development*, Holt, Rincehart and Winston,New York. 2. Anderson, J.R. (1983). *The architecture of cognition*. Cambridge, MA: Harvard University Press. 3. Barry and Johnson (1964). *Classroom Group Behaviour*, New York: Macmillan. 4. Bower, G.H. and Hilgard, E.R. (1981) Theories *of learning*. Prentice Hall, Inc. Englewood Cliffs, New Jersey. 5. Bruner, R.F. (1978). *Psychology applied to teaching*. Boston: Houghton Mifflin. 6. Chauhan, S. S. (2007). *Advanced Educational Psychology* (7th Ed.). New Delhi : Vikas Publishing House Pvt. Ltd. 7. Dandapani, S. (2001) *Advanced educational psychology, (2nd edition)*, NewDelhi, Anmol publications pvt Ltd. 8. Gagne, R. M. (1985). *The conditions of Learning and Theory ofInstruction* (4thEd.) .New York : Holl, Rinehart & Winston. 9. Gagne, R. M. & Driscoll, M. P. 1988). *Essentials of Learning for Instruction* (2nd Ed.). Engleweed Cliffs, NJ : Prentice Hall. 10. Ismail, Thamarasseri, (2008). *Psychological Foundations of Education*. New Delhi : Kaniska Publishers, Distributors. 11. Mangal, S. K. (2005). *Advanced Educational Psychology* (2nd Ed.). New Delhi: Prentice Hall of India. 12. Murthy, M. R. (2006). *Motivation and Learning*., Jaipur : Pointer Publishers. 13. Nagarajun M. T. V. (2008).*Psychology of Learning and Instruction*. New Delhi : Manglam Publication 14. Prem, Prakash. (2007). *Psychological Foundationsof Education*. Delhi : Kaniska Publishers, Distributors.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: 202: CURRICULUM STUDIES

Course Code	202
Course Title	**CURRICULUM STUDIES**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make the student capable of implementing the concepts, methods, and tools of curriculum studies and learn their implementation in Knowledge-Based Systems Course Objective To acquaint students with concepts of curriculum formation and its applications.
Course Objective	To make students acquainted with concepts of curriculum studies and its applications.
Course Outcomes	the students will : CO1. Define meaning of curriculum Transaction & Identify the components of curriculum.Describe the various principles of curriculum development & Explain various determinants of curriculum. CO2. Describe and analyze various approaches to curriculum development & Explain and compare various types of curriculum and the meaning of curriculum development & State major issues to be addressed through curriculum CO2. Describe various modes of curriculum development & Explain various considerations for curriculum development. CO4. Describe various methods/media for transaction & Discuss approaches of curriculum transaction. CO5. Explain role of ICT in curriculum Transaction & Define process of curriculum evaluation Differentiate between formative and summative evaluation Explain various tools used in curriculum evaluation. CO6. Identify the various stages of project evaluation & Describe issues in curriculum evaluation

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							

	CO6 [redacted]	
Pre-requisite	Basics of Mathematics, Data Structures	
Course content	**UNIT – I**	**NATURE, PRINCIPLES AND DETERMINANTS OF CURRICULUM**
	1.	Meaning and concept of curriculum
	2.	Curriculum as a body of organized knowledge, inert and live curriculum.
	3.	Components of Curriculum: Objectives, content, transaction mode and evaluation
	4.	Base/Foundations of Curriculum : Philosophical Bases (National, democratic), Sociological basis (socio cultural reconstruction), Psychological Bases (learner's needs and interests). International Norms (bench marking). **Axiological Issues:** Ethics and aesthetic branch. Its originand scope.
	5.	Determinants of Curriculum : Objectives-Values enshrined in the Constitution such as social justice, equality and secularism, Explosion of knowledge- Information vs. Knowledge, Nurturing creativity, Social forces, revolutionary change in the society: ICT, change in value system, Localization, Privatization and Globalization. Learner: growth and development
	6.	Approaches to curriculum : Subject centered, Community centere, LearnerCentered and interdisciplinary curriculum
	UNIT – II	**CURRICULUM DEVELOPMENT**
	1.	Principles of Curriculumdevelopment: Principles of integration, Relevance, flexibility, quality, continuality and plurality; Conservative (Preservation of Culture etc.), Forward looking principle
	2.	Models of curriculum development: Hilda Taba 1962 model, Nicholls and Nicholls -1972 model, Willes and Bondi-1989 model, Goodlod's model, Need assessment model, Vocational/ Training model
	3.	Current Trends in Curriculum Development: Autonomy and Curriculum Development, Curriculum for Inclusion, Curriculum for International and Multicultural Education
	UNIT – III	CURRICULUM TRANSACTION
	1.	Curriculum transaction: Meaning and concept, Minimum requirement for curriculum transaction (Duration, in-take, eligibility of students, content, qualification of teaching staff, infrastructure facilities, institutional facilities, classroom climate)
	2.	Relationship between Curriculum Transaction and Instruction: Instructional Design and Instructional System, Use of various methods & media in transaction with their strength and limitation,

		Role of Communication in Curriculum Transaction and its element, Enhancing curriculum transaction
	3.	Certain issues with curriculum and its transaction: Designing integrated and interdisciplinary learning experiences, Integration of learning experience related to work experience, sensitivity to gender parity, peace oriented values, health and needs of children with disabilities, arts and India's heritage of crafts, Infusion of environment related knowledge and concerns in all subjects and levels, Centralized vs. decentralized curriculum, Diversity among teachers in their competence, Participation of functionary and beneficiaries in curriculum development, Learning to draw upon resources other than text books, Problem of curriculum load
	UNIT – IV	**EVALUATION AND RESEARCH IN CURRICULUM CONSTRUCTION**
	1.	Curriculum evaluation: Meaning, Concept, Nature, Purpose &Objective, Types of Curriculum evaluation, Ideas for Effectiveness, Criteria and Importance
	2.	Curriculum evaluation Models : Tyler's Model, Stakes' Model, Scriven's Model, Krikpatrick's Model
	3.	Approaches to curriculum evaluation : Academic and Competency Based
	4.	Tools and Techniques of Curriculum evaluation: Observation, classroom interaction (with teacher and in peer group, group work), Oral: pretesting, diagnostic questions, Interview: consulting users of curriculum, An opinionnaire: Maintaining daily by the children as well as teachers, Project work: Peer evaluation maintaining portfolio of the work and their presentation.
References	**1.**	Aggarwal, Deepak (2007). *Curriculum development: Concept, Methods andTechniques.* New Delhi. Book Enclave.
	2.	Aggarwal, J.C (1990). *Curriculum Reform in India- World overviews,* Doaba World Education Series-3 Delhi, Doaba House, Book seller and Publisher.
	3.	Allyon and Bacon Inc. UNESCO (1981). *Curriculum and Life Long Education,* UNESCO, Paris.
	4.	Bhat B.D. & Sharma S.R. (1992). *Priciples of Curriculum Construction* , Kanishka Publishing House ,delhi
	5.	Dash, B. N. (2007). *Curriculum planning and development.* New Delhi, Dominant Publ.
	6.	Khan, M.I. & Nigam, B.K. (1993) . *Evaluation and Research in CurriculumConstruction.* Delhi: Kanishka
	7.	Mamidi, Malla Reddy and S. Ravishankar (eds.), *Curriculum Developmentand Educational Technology,* New Delhi: Sterling Publishing Pvt. Ltd
	8.	National Council of Educational Research and Training (1999). *Special Issue on Curriculum Development. [Special issue].* Journal of IndianEducation.

	25(3). 9. NCERT (2005). *National Curriculum Framework-2005*, NCERT, Sri Aurobindo Marg, New Delhi. 10. NCERT (2006).*Systematic reforms for Curriculum change*. New Delhi 11. NCTE (2009). *National Curriculum Framework for Teacher Education.* 12. NCERT (2000). *National Curriculum Framework for School Education*, NCERT, New Delhi. 13. Smith, Stawey & Shores,(1957) *:Curriculum Developmen*", World Book Co. Solomen, Pearl G.,(1998) . *The Curriculum Bridgo*, Corwin Press Inc. Srivastava, D.S and Sarita Kumari (2005). *Curriculum and Instruction*, Isha Books, D-43, Prithviraj Road, Adarsh NagarDelhi-110033
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: 203: TEACHER EDUCATION – II - PERSPECTIVES, RESEARCH AND ISSUES IN TEACHER EDUCATION

Course Code	**203**
Course Title	**TEACHER EDUCATION – II PERSPECTIVES, RESEARCH AND ISSUES IN TEACHER EDUCATION**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make the student capable of implementing the concepts of teacher education, its perspectives and its research. To make them capable to handle different issues in teacher education.
Course Objective	To make students acquainted with concepts of teacher education and its applications.
Course Outcomes	The students will : CO1 To understand the researches on various practices in teacher education. CO2 To highlight the areas of research in teacher-education programme and understand the problems faced in the areas of teacher-education. CO3 To understand the roles and responsibilities of teachers and teacher educators and apply in their work as a teacher. CO4 To acquaint with various issues and innovations in teacher education To analyze current challenges of teacher education

	CO5 To understand the recent trends in teacher education.To acquaint with quality standards in teacher education CO6To gain insight on quality improvement in teacher education

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							
CO6							

Pre-requisite: Basics of Teacher education

Course content

UNIT – I Perspectives and Policy of Teacher Education

1. Concept of Teacher Development
2. Factors influencing teacher development
3. Berliner's stages of development of a teacher
4. Teacher education in following policies and documents:
   - NPE 1986 (Teachers and their training)
   - POA 1992 (Teachers and their training)
   - NCFTE 2009 (Concept, Concerns and Vision of Teacher Education)
   - Vision of Teacher Education in India Quality and Regulatory Perspectives – Justice Verma Commission Report vol.1 -2012 (Quality of Pre-service and In-service teacher education, Teacher Performance, Teacher Audit and recommendations).
5. Administrative Structure of Teacher Education at State and National LevelStructure

UNIT – II Research in Teacher Education

1. Paradigms for research in teacher education (Walter Doyle, Pam Grossman and Morva McDonald).
2. Areas of research in teacher education.
3. Methodological issues and challenges:
   - direct versus indirect inference,
   - laboratory versus field research,
   - scope and limitations of classroom observation
   - generalizability of finding
4. Reviewofafewrecentresearchstudiesinteachereducationwith reference to design, findings and policyimplications

UNIT – III Challenges and issues in Teacher Education

1. The concept of Andragogy and its principles.
2. Code of Ethics for Teachers and Teacher educators.
3. Issues related to: Admission Criteria, commitment

		and teacher Performance (Assessment of Teacher Effectiveness), Curriculum Concerns in Teacher Education, Establishing Theory Practice Nexus, multiple subject teachers
	4.	Innovations in Teacher Education: Community Partnership, Effective classroom strategies, TQM in Teacher Education
	UNIT – IV	**Improving quality of Teacher Education**
	1.	Standards in Teacher Education: • Unit standards by National Council for Accreditation of Teacher Education (NCATE) • Quality indicators for teacher education by National Assessment and Accreditation Council (NAAC)
	2.	Reflective Teaching (Concept, Nature, Need, Psychlogical foundation of reflective teaching)
	3.	Reflective teaching in Pre-service teacher education: Concept, Models (Wellington and Austin's model, LaBoskey Model)
	4.	ICT in teacher education (use of ICT in admission, curriculum transaction, practice teaching and internship, and assessment)
References	1.	Association of Indian Universities (2000) *Teacher Education in India: Selection from University News-6.*New Delhi: Association of Indian Universities
	2.	Beck, Clive & Clark Kosnik Albany (2006): *Innovations in TeacherEducation: A Social Constructivist approach.*State University of York.
	3.	Berliner, D. C. (1988).*The development of expertise in pedagogy*.AACTE Publications, One Dupont Circle, Suite 610, Washington, DC 20036 2412.
	4.	Berliner, D. (1994). Teacher expertise.*Teaching and learning in the secondary school*, 107-113.
	5.	Berliner, D. (n.d.). *A Model ofTeaching Expertis*. Retrieved from http://images.pearsonassessments.com/images/NES_Publications/1994_05Berliner_339_1.pdf
	6.	Borg, W. R. & Gall, M. R. (1983).*Educational research : An Introduction*(4th Ed.). New York : Longman.
	7.	Doyle, W. (1977).Paradigms for Research on Teacher Effectiveness.*Reviewof Research in Education, 5*, 163–198.
	8.	Grossman, P., & McDonald, M.. (2008). Back to the Future: Directions for Research in Teaching and Teacher Education. *American Educational Research Journal*, *45*(1), 184–205.
	9.	J. S. Raput&Walia, K. (2002). *Teacher Education in India.* SterlingPublishers Private Limited: New Delhi.
	10.	Kauts, A. (2013). *Quality Concerns in Teacher Education.* Patiala:

21st Century Publications

11. Mangla, S. (2002).*Teacher Education- Trends and Strategies.*New Delhi: Sage Publishers.
12. Menon, M. & Rama, K. (2006).*Quality Indicators for Teacher Education.*Banglore: NAAC.
13. MHRD(1986)*NationalPolicyonEducationandProgrammeofAction*, Govt. of India, New Delhi.
14. MHRD(1992)*ProgrammeofAction*,DepartmentofEducation,Govt.of India, New Delhi.
15. Mohanty, J. (2007). *Teacher Education.*New Delhi: Deep and Deep publications Pvt. Ltd.
16. National Curriculum Framework for Teacher Education (Publication). (2009). New Delhi: National Council for Teacher Education.
17. NCTE. (1998). *Policy Perspective in Teacher Education- Critique andDocumentation.*NCTE New Delhi.
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19. NCTE (1998). *Competency Based and Commitment Oriented TeacherEducation for Quality School education: Pre-Service Education.* New Delhi.
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21. Prasad, J. (2007). *Principles and Practices of Teacher Education.* New Delhi: Kanishka Publishers
22. Ram, S. (1999): *Current Issues in Teacher Education.* Sarup& SonsPublications, New Delhi.
23. Rao, D. (2003).*Teachers in a changing world.* New Delhi: DiscoveryPublishing House.
24. Reimers, Eleonora Villegas (2003): *Teacher Professional development: an international review of the literature.* UNESCO: IIEP, Paris.
25. Sharma, S. R. (2008). *A Handbook of teacher Education.*New Delhi: Sarup&sons.
26. Siddiqui, M.A. (2008). *In-Service Teacher Education.* NewDelhi: A P H Publishing Corporation.
27. Srivastava R. C. (1996). *Teacher Education in india issues and perspectives.* NewDelhi: Regency Publications.
28. Unit Standards in Effect 2008.(n.d.). Retrieved fromhttp://www.ncate.org/Standards/UnitStandards/UnitStandardsinEffect2008/tabid/476/Default.aspx
29. Verma, J. S. (2012). *Vision of Teacher Education in India Quality andRegulatory Perspectives* (Vol. 1, Rep.).MHRD. Retrieved from http://www.teindia.nic.in/Files/TE-India-Report/JVC-Vol-1.pdf
30. અંધારિયા આર) .૨૦૦૫ .*(ચિન્તનાત્મક શિક્ષણ :સિદ્ધાંત અને વ્યવહાર.* અમદાવાદ : યુનિવર્સિટી ગ્રંથનિર્માણ બોર્ડ.
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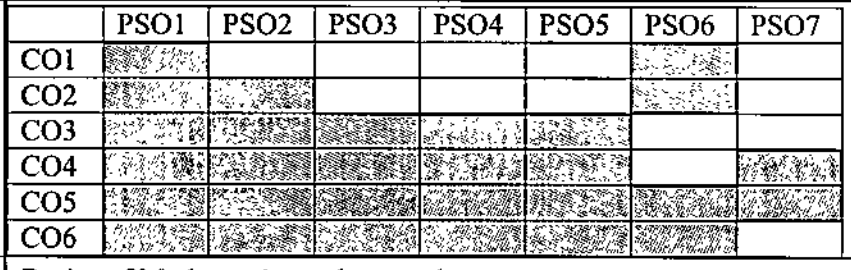
	ઉચાટ. 32. ચૌધરી ,આર ,.બી).૧૯૯૯ .(*ભારતીય શિક્ષણની વિત્તીય વ્યવસ્થા* .અમદાવાદ: યુનિવર્સિટી ગ્રંથનિર્માણ બોર્ડ. 33. ચૌધરી ,આર ,.બી).૨૦૧૦ .(*વિદ્યાલયોમાં નિરીક્ષણ-વ્યવસ્થા અને માનવ-સંબંધો* .અમદાવાદ :પ્રમુખ પ્રકાશન. 34. જોશી, બી, ને. વ્યાસ, જે. (સં.). (૨૦૦૬).*શિક્ષણાયન (યંદ્રકાન્ત ભોગાયતાના લેખો)*.ભાવનગર: એજ્યુકેશનલ ટેકનોલોજી ફોરમ. 35. પટેલ, આર. એસ. (૨૦૧૨).*શિક્ષણમાં સંશોધન* (ભાગ ૧ અને ૨). અમદાવાદ: જય પબ્લિકેશન. 36. રાવલ, એન. વી. (૨૦૧૪).*શિક્ષક શિક્ષણ*. અમદાવાદ: નીરવ પ્રકાશન. 37. શાહ, ડી.બી. (૨૦૦૬).*શૈક્ષણિક સંશોધન*. અમદાવાદ: યુનિવર્સિટી ગ્રંથનિર્માણ બોર્ડ 38. શિક્ષણશાસ્ત્ર ભવન, &એલ. એલ. કાકડિયા બી.એડ.કોલેજ (સં.). (૨૦૦૪).*ગુણવત્તાકેન્દ્રી શિક્ષક પ્રશિક્ષણ*.ભાવનગર: શ્રી સરદાર પટેલ સેવા ટ્રસ્ટ.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: 204: Advanced Research Methods

Course Code	204
Course Title	**Advanced Research Methods**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make the student capable of implementing the concepts, methods, and tools of Advanced Research and learn their implementation in Knowledge-Based Systems Course Objective To acquaint students with concepts ofAdvanced Research Methods and its applications.

Course Objective	To make students acquainted with concepts of Artificial Intelligence and its applications.
Course Outcomes	the students will : CO1 Explain the scope and application of educational statistics.Acquire himself with statistical theories and its application in Educational Research. CO2 Appropriate the role of parametric and non-parametric statistics in various types of educational research. CO3 Describe the importance of educational statistics and its relationship with of educational and the concepts and methods used in Statistical analysis of test scores. CO4Explain the concept of qualitative and quantitative data and the concept of Inferential and Descriptive Statistics. CO5 Test specific hypotheses about populations based on their sample data.Use appropriate procedures to analyze qualitative data CO6Interpret results obtained through different techniques of analysis of datainsight into research embedded instruction.Report the research work is accordance with the current trends and procedure of report writing
Mapping between COs with PSOs	
Pre-requisite	Basics of Mathematics and research
Course content	**UNIT-I ADVANCED RESEARCH** 1. Research ethics & it's Important. 2. Digging data from Survey Archives, Written Records - Recording Content Analysis of Documents/text books and Case studies 3. Concept and uses of following methods: (i) Ex-Post-Facto; (ii) Laboratory experiment; (iii) Field Studies and Field Experiment (iv) Ethnographic and Documentary Analysis. 4. Research Report writing. **UNIT-II Introduction to Statistics in Educational Research- I** 1. Use of statistics for managing data 2. Nature and Types of educational data 3. Organization and tabulation of data. 4. Frequency distributions 5. Graphic Representation of data - Histogram, Frequency Polygon, Frequency curve, Ogives, Pie diagram and Bar Diagram- Advantages and uses of Graphic representation of data

	6. **Measures of Relative Position-** Meaning, Concept and Uses of Percentiles, Quartiles and Percentile Rank, z-scores **UNIT-III Introduction to Statistics in Educational Research- II** 1. **Measures of Central Tendency and Dispersion-** Concept and Uses of Measures of central tendency, Concept and Uses of Measures of Dispersion 2. **Measures of Relationship:** Concept and Uses of Measures of: Correlation, item analysis, Estimation of reliability and validity. 3. **Regression and Prediction:** Concept of Simple Linear Regression and Regression Equations – Standard Error of Estimate as accuracy of prediction. 4. **Normal Probability Distributions Characteristics, Uses (Only Concept), Skewness & Kurtosis (Only Concept).** **UNIT–IV Inferential Analysis of Quantitative & QUALITATIVE DATA** 1. **Null-Hypothesis:** Concept & Testing. 2. **Significance of Statistics** : Concept of Standard Error, Estimating Confidence Limits of Mean (Small and Large Sample). 3. **Parametric test:** Concept and uses of t-test, Analysis of Variance and Covariance. 4. **Testing of null hypothesis and non parametric methods:** Concept & Uses of Chi-Square test, Sign test, Median Test, 5. **Factor Analysis:** Concept & it's Importance **Qualitative data Analysis: Concept and types**
References	1. Ary, Donald and Jacob (1976): *Introduction of Statistics, Purpose and Procedures*, New York, Holt Rinehart and Winston. 2. American Psychological Association. (2009): *Publication Manual of the American Psychological Association* (6th ed.). Washington, DC:Author 3. Babbie, E. R. (2007). *The Basics of Social research* (4th ed.). Australia:Thomson/Wadsworth. 4. Best, J.W. and Kahn, J.V (1998). *Research in Education*. New Delhi :Prentice of India, Pvt, Ltd. 5. Bordens, K. S., & Abbott, B. B. (1991): *Research designs and methods: A process approach* (2nd ed.). Mountain View, CA: Mayfield. 6. Berg, Bruce L. (2008.) *Qualitative research methods for the social sciences.*7th ed. Boston, MA: Allyn& Bacon. 7. Christensen, L. (2007). *Experimental Methodology*. Boston: Allyn & Bacon.

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16. Flick, U. (2012).*An Introduction to Qualitative Research.* London: Sage Publication
17. Gakhar, S.C. (2008). *Statistics in Education and Psychology* . N.M Publications.
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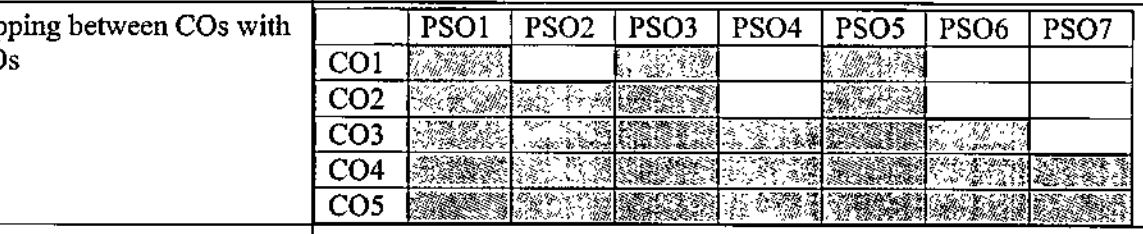
19. Garrett, H.E. (1966).*Introduction to Statistics in Psychology and Education.*New York: Longman's Green and Co.
20. Gay, L.R., Mills, G. E., and Airasian, P. (2009). *Educational Research.Competencies for Analysis and Applications.* New Jersy: Merrill and Pearson.
21. George Aegyrous, (2006*). Statistics for ResearchII edition* Sage Publication
22. Gibbons, J.D. (1971). Non-Parametric Statistical Inference. New York: McGraw Hill.
23. Glan, G.V., & Hopkins, K.D. (1996). *Statistical Methods in Education and Psychology,* (3rd edition). Boston: Allyn & Bacon.
24. Glicken, Morley D. (2002). *Social Research: A Simple Guide.* Boston, MA: Allyn and Bacon.
25. Guilford, J.P., and B. Fruchter. (1987). *Fundamental Statistics in Education and Psychology.* Tokyo: McGraw Hill (Student-Sixth edition).
26. ઉચાટ, ડી. એ.

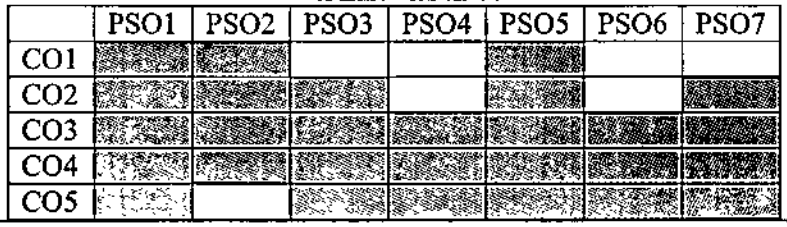
	(૨૦૦૯).*શિક્ષણઅનેસામાજિકવિજ્ઞાનોમાંસંશોધનનુંપદ્ધતિશાસ્ત્ર.* રાજકોટ: ડી. એ.ઉચાટ. 27. પટેલ, આર. એસ. (૨૦૧૨).*શિક્ષણમાંસંશોધન* (ભાગ૧અને૨). અમદાવાદ: જયપબ્લિકેશન. 28. શાહ, ડી.બી. (૨૦૦૬).*શૈક્ષણિકસંશોધન.* અમદાવાદ: યુનિવર્સિટીગ્રંથનિર્માણબોર્ડ
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	30% Internal assessment based on class attendance, participation, class test, quiz, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: 205: LIBRARY SKILLS

Course Code	**205**
Course Title	**Library skills**
Credit	1
Teaching per Week	2
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to develop library skill of the students.
Course Objective	• To develop knowledge and understanding of the Library skills and its resources. • To understand the importance of library skills. • To develop the habit of reading and reviewing of Educational resources. • To get acquainted with the role of library in Education and Research. • To get acquainted with the Digital supporting research institutions in Education.
Course Outcomes	CO1: Explain the students the concept of Library skills and its types & resources. CO2 :Explain students the understanding importance of library in M.Ed. Curriculum. CO3: Explain students To get acquainted with the habit of reading and reviewing of Educational resources CO4 : Explain students to get aware with the role of library in Education and Research. CO5 : Explain students to get familiar the role of Digital supporting

	research institutions in Education.
Mapping between COs with PSOs	
Pre-requisite	reading skill
Course Content	• History of Library → What is meaning of Library? → How Library useful to People ? → What are the types of Library? → Study of Top libraries of India/Gujarat. • Library skills → Concept of Library skill → Visit to a University Central Library regarding development of skills • Library skills in Research → How will Library skill use in Your Research? → APA style rules for writing references in Dissertation → Visit to department library & study One dissertation regarding presentation of References in Chapterization. • Library skills in Teaching-Learning → How will Library skill use Teaching-learning in M.Ed. Course? → Read one Reference book / Magazine and prepare a PPT regarding transaction of curriculum's unit of M.Ed. course • Library skills in Review → How will Library skill use in review of Article of Magazine? → Visit to department library & study One Research Paper/Study Paper & prepare a review report . • Preparation of Summary Report regarding Library Skills
Reference Books	Mary Ann Ramey(1992)Library Skills Reference Book.Contemporary Pub Co of Raleigh.
Teaching Methodology	Practical session, Discussion, Self-Study
Evaluation Method	100 % internal assessment based on Assignment, practical

Course: 206: Communication Skills

Course Code	**206**
Course Title	**Communication Skills**
Credit	1
Teaching per Week	2 Hrs
Minimum weeks per Semester	15 (Including Class work, Examination, Preparation, Holidays etc.)
Effective From	June 2016
The purpose of the course	To make students aware about concepts of communication, strategies for effective communication and its applications in school and classroom level.
Course Objective	To enable students to meet high professional expertise in teaching with the help of much developed communication skills.
Course Outcomes	Students will be able **CO1** To develop an understanding of the concept of communication, its components, communication process and its importance in teaching profession. **CO2** To develop effective oral presentation skills for effective teaching-learning process. **CO3** To judge and develop theirs and others' LSRW skills. **CO4** To enable them for job applying, making CV, resume and cover letters, and prepare them for job interviews. **CO5** To develop skills to perform certain formal tasks related to teaching profession such as application writing, report writing of all kinds, memorandum writing etc.
Mapping between COs with PSOs	
Pre-requisite	Basic concept of Communication, communication theories, Basic LSRW skills
Course Content	**UNIT – I** **Concept of Communication** 1. Communication: Meaning, Components and Process 2. Importance and benefits of effective communication 3. Introducing LSRW Skills **UNIT – II** **Developing LSRW Skills** 1. Introducing yourself 1. CV, Resume and cover letter 2. Report Writing: Format, Structure of Report and Kinds of Reports 3. Group Discussion

	4. Job Interview **5.** Role Play
Reference Books	1. Raman, M. and Sharma S.(2017). Technical Communication:Priciples and Practice.(2nd Ed.). Oxford University Press 2. Popat, P. and Kotadia K.(2015). Practical Techniques To Develop Communication Skills. Pothi Prakashan. Annd.
Teaching Methodology	Lecture, Participatory Approaches- Classroom Interaction, Discussion, Group Work, Pair Work, Presentations, Role play, Simulation, Reflections, and Self-Study
Evaluation Method	100 % internal assessment based on - 10% Class Attendance, 50% Ongoing Assessment- Classroom Participation and presentations, 20% Journal Keeping and maintaining portfolio, and 20% Final Viva.

Course: 207: Dissertation Guidance

Course Code	**207**
Course Title	Dissertation Guidance
Credit	2
Teaching per Week	2 Hrs
Minimum weeks per Semester	15 (Including Class work, Examination, Preparation, Holidays etc.)
Effective From	June 2016.
The purpose of the course	To make students aware about concepts ofeducational research work .
Course Objective	To enable students to meet high professional expertise in educational research.
Course Outcomes	Students will be able **CO1** To develop an understanding of the concept of review of related literature. **CO2** To develop understanding of finding research gap in selected research work. **CO3** To enable them for to make proper research design, sample size, research tools and methods of interpretation. **CO4** To develop skills to draft chapters 2 and 3 which are related to review of literature and research design.
Mapping between COs with PSOs	PSO1 PSO2 PSO3 PSO4 PSO5 PSO6 PSO7 CO1 CO2 CO3 CO4
Pre-requisite	Basics of educational research

Course Content	1 Draft of Second chapter of research 2 Draft of Third chapter of research 3 Making of TOOLs
Reference Books	1 Ary, Donald and Jacob (1976): *Introduction of Statistics, Purpose and Procedures*, New York, Holt Rinehart and Winston. 2 American Psychological Association. (2009): *Publication Manual of the American Psychological Association* (6th ed.). Washington, DC:Author 3 Babbie, E. R. (2007). *The Basics of Social research* (4th ed.). Australia:Thomson/Wadsworth. 4 Best, J.W. and Kahn, J.V (1998). *Research in Education*. New Delhi :Prentice of India, Pvt, Ltd. 5 Bordens, K. S., & Abbott, B. B. (1991): *Research designs and methods: A process approach* (2nd ed.). Mountain View, CA: Mayfield. 6 Berg, Bruce L. (2008.) *Qualitative research methods for the social sciences.*7th ed. Boston, MA: Allyn& Bacon. 7 Christensen, L. (2007). *Experimental Methodology*. Boston: Allyn & Bacon. 8 Clive Opie (2004). *Doing Educational Research- A Guide for First timeresearchers*. New Delhi: Vistar Publications. 9 Cononver, W.J. (1971). Practical Non-Parametric Statistics. New York: John Wiley & Sons Inc. 10 Corey, Stephen M. (1953). *Action research to improve school practices.*York: Bureau of Publications, Teachers College, ColumbiaUniversity.
Teaching Methodology	Discussion and Self-Study
Evaluation Method	100 % Internal evaluation on the basis of draft of second and third chapter of research and research tool prepared

M.Ed. Semester – 3

Paper Code	Subjects /Curriculum component	Credit	T Cr	P cr	Internal Assessment (marks)	External Assessment (marks)	Total Marks
	Inter Semester Break						
301 SCCEP/SCCSP	**Community Services and Reporting**	1		1	25	-	25
	Semester – III						
302 PCC	Sociology of Education	4	3	1	30	70	100
303 SCCE /SCCS	**Specialization Core Course – 1 (Select any one of the following)** 1) System, Structure, and issues in elementary education (SCCE-1) 2) System, Structure, and issues in secondary education (SCCs-1)	4	3	1	30	70	100
304 SCCE /SCCS	**Specialization Core Course – 2 (Select any one of the following)** 1) Curriculum, Management and Pedagogy in elementary education (SSCS-1) 2) Curriculum, Management and Pedagogy in secondary education (SCCS-2)	4	3	1	30	70	100
305 TE –FE	Internship – Teacher Education Institution	4		4		100	100
306 SCCEP/SCCSP	**Research Paper Writing Workshop and Presentation**	**1**		**1**	**25**		**25**
307 SCCEP /SCCSP	**Preparation of Reflective report of any two educational articles published in newspaper related with specialization**	1		1	25	-	25

308 RPD	**Dissertation Guidance: (Draft of Fourth Chapter)**	**1**		**1**	**25**		**25**
	Total	**20**	**09**	**11**	**190**	**310**	**500**

M. Ed. Semester -3

Course: 301 Community Services and Reporting

Course Code	301
Course Title	**Community Services and Reporting**
Credit	1
Teaching per Week	2 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make the student aware about their role of community service.
Course Objective	To make students acquainted with the ideas and skills for the community service.
Course Outcomes	The students will: **CO1** Identify problems of the community. **CO2** Understand the reason behind the problems faced by the community. **CO3** Know how they can contribute to solve the problems of the community. **CO4** Serve the community by doing the community service in the field.
Mapping between COs with PSOs	PSO1 PSO2 PSO3 PSO4 PSO5 PSO6 PSO7 CO1 CO2 CO3 CO4
Pre-requisite	Basics ofSociology, reflection, education and thinking
Course Content	The Students identifies the area of community service The Students prepare planning for the community service The Students go into the field for at least 32 hours and perform as per their planning during the inter semester break The Students prepare a detailed report with proof and photographs of their community service and submit it for the evaluation.

Reference Books	Refer library books and online resources
Teaching Methodology	Self-Study, Group and individual field-based work
Evaluation Methods	100% Internal assessment based on the report submitted by the student.

Course: 302Sociology of Education

Course Code	**302**
Course Title	**Sociology of Education**
Credit	4
Teaching per Week	**5 Hrs**
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make the student understand the nature and functions of sociology as well as sociology of education and make use of principles of sociology for studying educational phenomenon and do logical analysis, interpretation and synthesis of concepts, propositions and sociological assumptions.
Course Objective	To make students acquainted with concepts, methods, postulates, assumptions of sociology as well as sociology of education and its applications.
Course Outcomes	The students will: **CO1** Understand the social context of education **CO2** Appreciate the relationship between education and society **CO3** Understand the role of education in a changing social context **CO4** Decipher the nature and scope of sociological inquiry in education **CO5** Appreciate the role of education in the context of national development **CO6** Provide an understanding of certain current problems and issues in the social context

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							
CO6							

Pre-requisite	Basics of society, social phenomenon and education

Course Content		
	UNIT – I	**SOCIOLOGY OF EDUCATION: CONCEPTUAL FRAMEWORK**
	1.	Meaning , Definition , Concept, Scope, Nature, Function and Understanding of Sociology of Education
	2.	Difference between: Sociology of Education, Educational Sociology and Social Foundations of Education
	3.	Social purpose of education and Dynamic relationship of education with society
	4.	Education as an Institution;, a social sub system, as a socialization process and a process of social progress; Major roles and status (Students, teachers and administrators interrelationships)
	UNIT – II	**SOCIAL CHANGES AND EDUCATION**
	1.	Meaning and Nature of Social change, Relationship between Education and Social change.
	2.	Factors promoting Social change: Family, religion, school and mass media.
	3.	Social stratification: Castes and Creeds, Social Groups and Social Class and it's Impact of Education
	4.	Constraints on social change : Caste, Class, Language, Religion, Population and Regionalisms.
	5.	Social control: Education of socially and economically disadvantaged section of society with special reference to : Scheduled Caste, Scheduled Tribes, Women and Rural Population.
	6.	Factors influencing Social Change and Education: Social Mobility (Westernization, Sanskritisation, Urbanization and Industrialization and Modernization), Social organizations, Social institutions, Modern Trends, Attitude and Values.
	UNIT – III	**SOCIAL EDUCATIONAL OUTCOMES**
	1.	**Culture :**Concepts of Culture, Sub-Culture and Multiculturalism , Difference between culture and civilization, Enculturation and Acculturation, Cultural compression and reproduction and contextual role of Education; Role of Education in transmission of the cultural heritage
	2.	**Moral and Religious bases of Education:** Secularism and religious Education, Moral and spirituals Education, Education for national integration and international understanding
	3.	**Politics:** Concept of Democracy, Welfare state, Equity and Education.

	UNIT – IV	**EDUCATIONAL & SOCIAL DEVELOPMENTS - CONTEMPORARY ISSUES**
	1.	**Literacy:** Constitutional Provisions and its implications for education;Code of Conduct / /Professional Ethics for Teachers and Students; Approaches to professionalization of higher education
	2.	**Globalization and Privatization :**Concept, Overview of its impact on Education and Society.
	3.	**Peace Education:** Concept, Overview of its impact onEducation and Society.
	4.	**Right based approach to Education:** Human Rights Education, Child Rights, Right to Education Act, Rights for women, destitute, ICDS in bringing equity and protecting rights
	---	**TRANSACTIONAL MODE**
		The course would be transacted through participatory approaches including
	1	Group discussion, Self Study, Seminar/ Presentation.
	2	Group and individual field-based assignments
Reference Books	**1.**	Berger, P. L. (1966). *Invitation to Sociology*. London: Penguin Books.
	2.	Berger, P. L., &Luckmann, T. (1967). *The Social Construction of Reality*. Allene Lane: The Penguin Press (Set Book).
	3.	Bhattacharya &Srinivas. (1962). *Society and Education*. Calcutta: Academic Publishers.
	4.	Brookoner, W.B., & Gottlieb, D. (1964). *A Sociology of Education (2 Ed.)*. New York: American Book Company .
	5.	Carl H Gross, C. H., Wronski, S. P., & Hanson, J. W. (1962). *School & Society*. Boston: D.C. Health & Co.
	6.	Chitnis, S. (1974). *Sociology of Education: A trend report in a survey of Research in Sociology and Social Anthropology by ICSSR. Vol. II*, p. 166-232. Bombay: Popular Prakashan (ICSSR).
	7.	Cosia, B.R. (1971). *School and Society, Prepared "The School and Society Course Team at the Open University" in School and Society*. London: TheOpen University Press.
	8.	Cox, W. L., & Mercer, B. E. (1961). *Education in Democracy*. New York: Mc Graw Hill.
	9.	Donald A. H., & Joel, E. G. (1967). *On Education – Sociological Perspectives*. New York: John Wiley and Sons Inc.
	10.	Dukhiem, E. (1956). *Education & Sociology*. New York: The Free Press.
	11.	Freedman, B. (1967). *The College Experience*. San Fransisco: Jossey-Bass Inc.

12. Harris, E. S. (1965). *Challenge and Change in American Education*. California :McCutchan Publishing Corporation.
13. Levitas, M. (1974). *Marxist perpectives in the sociology of education*. London: Routledge &Kangan Paul.
14. Morris, I. (1978). *The Sociology of Education - An introduction*. London: William Cloves Limited.
15. Moser, C.A., &Calton, G. (1979). *Survey Methods in Social Investigation (2nd Ed.)* California: The English Language Book Survey & HeinemannEdl. Books.
16. Musgrave, P. W. (1970). *Sociology, History and Education-a reader*. London: Methuen & Co. Ltd.
17. Nisbet, R. A. (1967). *The Sociological Tradition*. London: Heinemann.
18. Ottaway, A. K. C. (1962). *Education in Society: An introduction to sociology of education*. London: Routeledge and Kegan Paul Ltd.
19. Parsons, P. (1951). *The Social System*. USA: Free Press.
20. Premnath. (1957). *The Bases of Education*. Delhi: S. Chand & Co.
21. Ruhela, S. P. (1969). *Social determinants of Educability in India*. New Delhi: Jain Brothers Publishers.
22. Schlechty, P. C. (1976). *Teaching and Social Behaviour*. USA: Allyn and Bacon, Inc.
23. Shah, B. V. (1965). Sociology of Education - An attempt at definition and scope. *Sociological Bulletin,* XIV (2), p. 65.
24. Shukla, S. (1963). *The Context of Education in Developing Societies*. Delhi: CIE.
25. Sieber, S. D., & Wilder, D. E. (1973). *The School of Society*. New York: The Free Press.
26. Sprott, U. (1958). *Human Groups*. UK: Pelican Books.
27. Swift, D. F. (1970). *Basic readings in sociology of education*. London: Routledge & Kegan Paul.
28. Thirtha, T. (1974). *Education and Society*. Banglore: Centre for Educational Sociology.
29. Tyler, W. (1977). *The Sociology of Educational Inequality*. London: Methuen and Co. Ltd.
30. West, E. G. (1965). *Education and the State*. London: The Institute of Economic Affairs Ltd.

Teaching Methodology	participatory approaches, Group discussion, Self Study, Seminar/ Presentation, Group and individual field-based assignments
Evaluation Methods	30% Internal assessment based on class attendance, participation, assignment, internal examination, etc. 70% External based on semester end University examination

Course: 303SCCE System, Structure, and issues in Elementary Education

Course Code	303
Course Title	**System, Structure, and issues in Elementary Education**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make the student understand the nature and functions of elementary education system and make use of their existing knowledge to identify the issues and its remedies in the field of elementary education.
Course Objective	To make students acquainted with knowledge of concepts, organizational structure, and issues of elementary education system.
Course Outcomes	The students will: **CO1** Understand the context of elementary education. **CO2** Understand the concept, objectives, rationale, challenges and extent of success of Universal Elementary Education (UEE) **CO3** Understand the importance of elementary education envisaged in different education reports and policies. **CO4** To develop understanding about different constitutional provisions related to education **CO5** Understand the positive impact of the UEE on Indian primary education **CO6** Understand management structure of elementary education at different level **CO7** Develop understanding of status of elementary education, its issues and innovations.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							
CO6							
CO7							

Pre-requisite	Basics ofElementary Education and thinking
Course Content	**UNIT – I PERSPECTIVES AND CONTEXT OF ELEMENTARY EDUCATION**

	1.	Concept of primary education: General Aims and Objectives, Nature and Characteristics, Scope and Functions
	2.	Historical Perspectives of Elementary Education in Pre - Independent India (brief review)
	3.	Nature and focus of Elementary Education in Post-Independent India (brief review)
	4.	Meaning, need and significance of elementary education inIndia - Focus of elementary education as envisaged in different education commissions and policies (Kothari Commission, NPE 1986, POA 1992) - Elements of Quality Primary Education.
	5.	Recommendations of Delors commission in terms of four pillors of education
	UNIT – II	**STUCTURE OF ELEMENTARY EDUCATION**
	1.	1997 - 86th Constitutional Amendment Bill (RTE) - EFA- Education For All with special reference to Early Childhood Education, improving Schooling and financing quality education
	2.	Structure and Status of Elementary Education in India **with context to different Boards**: State Boards, CBSC, ICSE, IGCSEand International Boards- Purpose and Functions **with context to different types of Schools**: Government / aided /Unaided, Public, Kendrividyalaya, NavodayaVidyalaya, International Sc **with context to different levels**: National and State level, NCERT,SCERT, KV, NVS etc. **with context to Open schooling**: National and State Open schools- Objectives and Functioning **with context to Nature and forms of inequality:** including dominantand minor groups , gender inequality in schooling, public - private schools, rural - urban - tribal schools
	3.	Management Structures of Elementary Education at Different Level: National, State, District (including Municipal Corporation) Block, Cluster, School
	4.	Global Perspectives:Elementary Education inEngland, France, USA, Australia, Japan, Russia, China.
	UNIT – III	**ELEMENTARY EDUCATION IN INDIA**
	1.	Critical appraisal of the Current Status ofElementary Education in India: (Universal access to enrolment of elementaryeducation,

		Retention of children in the age group of 6 to 14, Improvement in quality of education to enable all children to attain essential levels of life)
	2.	Universalizing elementary education UEE in India. (Concept, objectives, meaning and justification of UEE)
	3.	Positive Impacts of Universalization of Education with reference to the equity principles (Bridging the gender and social gaps, Getting rid of poverty and social discrimination nexus, Breaking inter generation cycle of illiteracy, Developing self confidence in new generation, taking care of migrant population)
	4.	Critical appraisal of current status of UEE (access, enrolment, and retention): differential across habitation, gender, caste and other socially disadvantaged groups including first generation learners and migrant population).
	5.	Programmes Measures towards realization of UEE (Universalization ofElementary Education)
	UNIT – IV	**CHALLENGES IN ELEMENTARY EDUCATION**
	1.	Major Issues and Challengesin UEEin India • Enrolment and dropout • Migration of parents • Making education assessable to remote areas Availability of Subject Specialized teachers • Primary education of SC, ST and Gifted Children and attempts of adjustment Teacher Student Ratio at primary and upper primary level
	2.	Critical appraisal of the elementary teacher education programmes in the GUJARAT: Providing minimum facilities, improving internal efficiency of the system-teacher empowerment and incentive schemes; managing learning in multi grade contexts.
	3.	Innovations in Elementary Education
	4.	SSA (SarvaSikshaAbhiyan) objectives& functions
Reference Books	1.	Celin Richards (1984). *The Study of Primary Education and Resource Book. Vol. I.*
	2.	Government of India (1986) *National Policy on Education*, New Delhi, MHRD.

3. Government of India (1987) *Programme of Action*, New Delhi: MHRD.
4. Government of India (1987) *Report of the Committee for Review ofNational Policy on Education,* New Delhi, MHRD.
5. Hayes, Denis (2008). *Primary Teaching Today: An Introduction*. Routledge Publication USA.
6. *National Curriculum Framework (NCF)-2005* NCERT, New Delhi.
7. Rao, V.K. (2007): *Universatisation of Elementary Education*. Indian Publishers, New Delhi.
8. Rita Chemicals (2008): *Engaging pupil voice to ensure that every child matters: A practical guide.* David Fultan Publishers.
9. Sharma, Ram Nath (2002): *Indian Education at the cross road.* Shubhi Publications.
10. Tilak, J.B. (1992) *Educational Planning at gross roots*, New Delhi;
11. UNESCO (2005): EFA *Global Monitoring Report on Quality of Education Finance*

Gujarati &Hindi Books:

1. દવેજયેન્દ્ર પટેલમોતીભાઇ(1992). (પાંચમીઆવૃત્તિ): ભારતીયશિક્ષણના નૂતન પ્રવાહો અનેસમસ્યાઓઅમદાવાદ:બી.એસ.શાહ□કાશન.
2. દેસાઇધનવંત(1964). ભારતીયશિક્ષણનાવર્તમાન પ્રશ્નોઅમાદવાદ: એ.આર.શેઠનીકંપની
3. દેસાઇધનવંત(1973). કેળવણીનું નવનિર્માણ કોઠારી શિક્ષણ પંચની ભલામણો અમદાવાદ: એ.આર.શેઠનીકંપની.
4. ધનવંતદેસાઇ(1969). અર્વાચીનભારતીયકેળવણીનોવિકાસવડોદરા: મ.સ. યુનીવર્સીટી
5. પાઠકઅને શુકલ (2003). ભારતમાંશૈક્ષણિકપ્રણાલીનોવિકાસઅમદાવાદ: વારિષેણ પ્રકાશન
6. મફતભાઇપટેલ (1997). પ્રાથમિક શિક્ષણએકઅવલોકનઅમદાવાદ: શ્વેતાપ્રકાશન
7. પટેલ, દવે, પાઠક(1985). પ્રાથમિક શિક્ષણનાપ્રવાહોઅનેપ્રશ્નોગાંધીનગર, ગુજરાતરાજય પાઠય પુસ્તકમંડળ
8. યશપાલકિમટી નોઅહેવાલ:નવીદિલ્હી , ભારતસરકાર, એમ.એચ.આર.ડી
9. શેઠશાંતીભાઇઅનેરાવલઆર.સી. (2002). પ્રત્યાયન અભ્યાશ્ક્રમ વશેષાંકગાંધીનગર, ગુજરાતરાજયશાળાપાઠય પુસ્તક મંડળ
10. પટેલમોતીભાઇ(2005). શિક્ષણના સામ્પ્રત પ્રવાહોઅનેશિક્ષણનીઅસ્મિતા

	અમદાવાદ:બી.એસ. શાહપ્રકાશન 11. પટેલમોતીભાઇ(2003). ભારતીયશિક્ષણનોઇતિહાસ: એકઝલકઅમદાવાદ: બી.એસ. શાહપ્રકાશન 12. પટેલમોતીભાઇ(2009). કેળવણીનોકોયડોઅમદાવાદ: પદ્મા પબ્લિકેશન . 13. પટલમોતીભાઇ(2009). શિક્ષણનાપ્રવાહોઅમદાવાદ: પદ્મા પબ્લિકેશન. 14. પટેલમોતીભાઇ(2009) વિદ્યાનીવ્યથાકથાઅમદાવાદ:પદ્મા પબ્લિકેશન 15. અલતેકર, એ.એસ. (1965). પ્રાચીનભારતમાં શિક્ષણ અમદાવાદ: ગુજરાતયુનીવર્સીટી પ્રકાશન 16. ભાલજે.ડી. (1997). બીજી આવૃત્તિ) ભારતનીશિક્ષણ વ્યવસ્થાઅમદાવાદયુનીવર્સીટી ગ્રંથ નિર્માણ બોર્ડ. 17. તોમરલજ્જારામ(1984) ભારતીયશિક્ષણના મૂળતત્વોઅમદાવાદગુજરાતયુનીવર્સીટી, સંસ્કાર ગુર્જરી 18. યોગક્ષમ માનવગૌરવસંસથાન. (2007). પ્રાથિમકશિક્ષક અને કાયદોન્યુ દિલ્હી :મીન્સ્ટ્રી ઓફલો જસ્ટીશ લેજીસ્તીવ ડીપાર્ટમેન્ટ. 19. ચૌધરી, આર., બી.(૧૯૯૯). *ભારતીય શિક્ષણની વિત્તીય વ્યવસ્થા* .અમદાવાદ: યુનિવર્સિટી ગ્રંથનિર્માણ બોર્ડ. .20 ચૌધરી, આર., બી.(૨૦૧૦). *વિદ્યાલયોમાં નિરીક્ષણ-વ્યવસ્થા અને માનવ-સંબંધો* .અમદાવાદ: પ્રમુખ પ્રકાશન 21. મિશ્રા, રામેશ્વર (૧૯૯૯) ભારતીય શિક્ષાકે લક્ષ્ય નઈ દિલ્હી, ઍન . સી .ટી .ઇ 22. મિશ્રા, રામેશ્વર (૧૯૯૯) અધ્યાપન ભારતીય દ્રષ્ટિ નઈ દિલ્હી, ઍન . સી .ટી .ઇ
Teaching Methodology	Lecture-cum-discussion,Group discussion, reflection in groups,Assignments based on reference to resources-library and internet followed by presentations in seminars; field visit followed with report.
Evaluation Methods	30% Internal assessment based on class attendance, participation, assignment, internal examination, etc. 70% External based on semester end University examination

Course: 303 SCCSSystem, Structure, and issues inSecondary Education

Course Code	303
Course Title	**System, Structure, and issues in Secondary Education**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)

Effective From	June 2016
Purpose of Course	The purpose of the course is to make the student understand the nature and functions of secondary education system and make use of their existing knowledge to identify the issues and its remedies in the field of secondary education.
Course Objective	To make students acquainted with knowledge of concepts, organizational structure, and issues of secondary education system.
Course Outcomes	The students will: **CO1** Know the evolution of secondary and higher secondary education in India. **CO2** Understand the concept of secondary and higher secondary education **CO3** Know and analyze the different Structures of Secondary and Higher Secondary Education **CO4** Understand the Global Perspectives of Secondary and Higher Secondary Education **CO5** Understand the nature-scope and systems of secondary and senior secondary education **CO6** Understand the problem and challenges related to secondary and senior secondary education **CO7** Understand the interventions to solve the problems and issues related to alternative schooling at secondary schools. **CO8** Identify critical issues related to universalization of secondary education **CO9** Visualize the impact of Rights of children to free and Compulsory Education Act, 2009 to universalization of Secondary Education **CO10** Know the New Trends and Innovation in Secondary and Higher SecondaryEducation
Mapping between COs with PSOs	
Pre-requisite	Basics ofSecondary Education and thinking
Course Content	**UNIT – I PERSPECTIVE AND CONTEXT OF SECONDARY AND HIGHER SECONDARY EDUCATION**

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							
CO6							
CO7							
CO8							
CO9							
CO10							

	1.	Concept of Secondary and Higher Secondary Education: General Aims and Objectives, Nature and Characteristics, Scope and Functions
	2.	Historical Perspectives of Secondary and Higher Secondary Education in Pre - Independent India (brief review)
	3.	Nature and focus of Secondary and Higher Education in Post-Independent India (brief review)
	4.	Recommendations of Commissions and Policies on Secondary and higher secondary Education: Mudaliar commission, Kothari commission Yashpal Committee NPE 1986, POA 1992
	5.	Recommendations of Delors commission in terms of four pillors of education
	UNIT – II	**STUCTURE OF SECONDARY AND HIGHER SECONDARY EDUCATION**
	1.	Rights of children to free and Compulsory Education Act, 2009 to universalization of Secondary Education(NCF - 2009)
	2.	Structure and Status of Secondary and higher secondary Education in India: **with context to different Boards**: State Boards, CBSC, ICSE, IGCSEand International Boards- Purpose and Functions, **with context to different types of Schools**: Government / aided /Unaided, Public, Kendrividyalaya, NavodayaVidyalaya, International Schools and schools for weaker sections, **with context to different streams**: Arts, Commerce, Science andVocational; their significance, **with context to different levels**: National and State level, NCERT,SCERT, KV, NVS etc, **with context to Open schooling**: National and State Open schools-Objectives and Functioning, **with context to Nature and forms of inequality:** including dominantand minor groups , gender inequality in schooling, public - private schools, rural - urban - tribal schools
	3.	Management system of secondary education - role of Department of Education, Directorate, Inspectorate and NGO's.
	4.	Global Perspectives:Secondary and Higher Secondary Education inEngland, France, USA, Australia, Japan, Russia, China,
	UNIT – III	**PROBLEMS AND CHALLENGES OF SECONDARY AND HIGHER SECONDARY EDUCATION**
	1.	Universalisation of Secondary Education
	2.	Alternative Schooling at Secondary Stage
	3.	Problems / challenges / strategies / intervention in relation to access, enrolment, wastage and stagnation, achievement and equality of Educational opportunities
	4.	Education for girls, disadvantaged and differently able children

		and slow learners and interventions to solve the problems
	5.	Classroom discipline, under achievement, lack of motivation, delinquency and maladjustment
	6.	Teaching-learning for adolescents
	7.	Exposure to integrated and subject specific streams, guidelines and counseling strategies to meet changing physiological and sociological requirements.
	8.	Education for Multiple Intelligence
	UNIT – IV	**NEW TRENDS AND INNOVATION IN SECONDARY AND HIGHER SECONDARY EDUCATION**
	1.	Universalization of Secondary and Higher Secondary Education: Need, Challenges and Actions.
	2.	Rashtriya Madhamik Shiksha Abhiyan (RMSA)- Objectives and Functioning
	3.	Innovations in Teaching learning at Secondary and Higher Secondary Education- Blend of ICT, Competency Based teaching, Project based learning
	4.	Innovation in examinations: Innovations in Board Examinations, Continuous and comprehensive evaluation, Use of ICT in Examination, Semester System, Grading, Open Book Examination, On-line Examination, No Examination
Reference Books	1.	Chopra, R.K. (1993) *Status of Teachers in India*, NCERT, New Delhi.
	2.	Cohen Louis, Minion Lawrence & Morrison, Keith (2004). *A Guide to Teaching Practice (5th edition)*. Rout ledge Falmer. London and New York.
	3.	Govt. of India (1953) *Report of Secondary Education Commission*, New Delhi.
	4.	Govt. of India (1996) *Indian Education Commission (1964-66) Report*. New Delhi.
	5.	Government of India (1992). Report of core group on value orientation to education. New Delhi: Planning Commission, Government of India.
	6.	Govt. of India - (1986/1992) *National Policy of Education, 1992 Modification and their POA's,* MHRD, Dept. of Education.
	7.	Govt. of India, MHRD (2005). *Universilisation of Secondary Education*: Report of the CABE Committee, New Delhi
	8.	Kaur, B. (2006). Teaching peace, conflict and pride. New Delhi: Penguin Books.
	9.	Kumar,Arvind (2003). Environmental challenges of the 21st century. New Delhi:APH Publishing Corporation
	10.	Kumar,Krishna (1996). Learning from conflict. New Delhi: Orient Longman.
	11.	Malhotra, P.L. (1986) *School Education in India: Present Status and Future*

	*Needs N*CERT, New Delhi. 12. Ministry of Law and Justice (2009) Right to education. New Delhi: Govt. of India. 13. Mohammad Miyan (2004). *Professionalisation of Teacher Education*. New Delhi. Mittal Publications 14. NCERT(2005). National Curriculum Framework 2005. New Delhi: NCERT 15. NCTE. (1998). *Policy Perspective in Teacher Education- Critique and Documentation. N*CTE New Delhi. 16. NCTE (1998). *Competency Based and Commitment Oriented Teacher Education for Quality School education: Pre-Service Education*. New Delhi.
Teaching Methodology	Group discussion, lecture-cum-discussion, panel discussion, symposium, preparation of reports research journals, school visits and sharing of experiences, presentation of case studies and individual group assignments in a seminar.
Evaluation Methods	30% Internal assessment based on class attendance, participation, assignment, internal examination, etc. 70% External based on semester end University examination

Course: 304SCCECurriculum, Management and Pedagogy in Elementary Education

Course Code	304
Course Title	**Curriculum, Management and Pedagogy in Elementary Education**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make the student understand the nature and functions of curriculum, and management ofelementary education and acquire pedagogical skills to work in the field of elementary education.
Course Objective	To make students acquainted with concepts of curriculum and management of elementary education and develop pedagogical understanding and skills.
Course Outcomes	The students will:

CO1	To develop insight for curriculum in elementary education
CO2	To develop an understanding of underlying principles of curriculumdevelopment at elementary stage
CO3	To understand administration and management at elementary schoollevel
CO4	To acquaint with child cantered pedagogy
CO5	To understand effective uses of various methods and

		approachesofteaching language, mathematics, science, social/environmentalscience, arts and physical education at elementary level

Mapping between COs with PSOs		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
	CO1							
	CO2							
	CO3							
	CO4							
	CO5							

Pre-requisite	Basics of Education and thinking
Course Content	**UNIT – I** **Curriculum** 1. Meaning and Concept of Curriculum at Elementary School Level (Standard 1 to 8) 2. Aims and Objectives of Curriculum at Elementary School Level 3. Guiding principles of curriculum development for elementary education 4. Planning of curriculum for curricular areas (as suggested in NCF 2005) • Language • Mathematics • Science • Social Sciences • Art Education • Health and Physical Education 5. Material and Aids for curriculum transaction at elementary School Level : Textbooks, Reference Books, Teachers' handbook, Library, Laboratories, Teaching Aids, Digital Recourses (characteristics,

	UNIT – II	**Management**
	1.	School Management (Meaning, Concept, Need, Importance)
	2.	Management structure at different level (Institutions, their organization, functions, roles and responsibilities) : National, State, District (including Municipal Corporation), Block, Cluster, School (including SMC)
	3.	Availability and Management of Resources: • Physical Resource Management – Management of the School plan • Human Resource Management – Management of the School Staff, • Delegation of Roles and Responsibilities (Need and Relevance) • Democratic Decision Making: Need and Purpose • Financial Resource Management : Process and Procedure
	4.	School Supervision: Concept, Need, Purpose
	5.	Appointment process of Principals and Teachers at Elementary School Level in Gujarat
	6.	Assessment and Accreditation initiative in Gujarat: Gunotsav merits and demerits)
	UNIT – III	**Pedagogy- I**
	1.	Child centered pedagogy: Concept, Learners in Context, Development and Learning
	2.	Process of knowledge construction for development of concepts, understanding, logical reasoning, critical thinking and problem solving
	3.	Pragna Approach' at Elementary School level
	4.	Language(s): factors influencing languagedevelopment, objectives of teaching mother-tongue/language(s)& Secondary languages,
	5.	Language Skills Development:Pedagogy for development of listening skills, speaking skills, reading skills, and writing skills
	UNIT – IV	**Pedagogy- II**
	1.	Mathematics: objectives of teaching mathematics for elementary school, problems in mathematics education, strategies for teaching concepts, principles, computational and drawing skills and problem solving abilities in mathematics; laboratory approach to learning mathematics
	2.	Science: objectives of teaching science for elementary school, Constructivist approaches and methodsfor teaching science (Experimental Method, Project Method, Problem Solving Method, Guided Discovery Method, Brain storming, Simulation, Role play)
	3.	Social Science/Environmental Studies: objectives of teaching

		Social Science/Environmental Studies for elementary school,organization of learning experiences, observation, investigation and exploration of the social world and environment of the child
	4.	Art Education and Health & Physical Education: Objectives and instructional strategies
	5.	School based Continuous and Comprehensive Evaluation at Elementary School Level(Present Practice)
Reference Books	1.	Baur, G.R & others (1976): *Helping Children Learn Mathematics: A Competency Based Laboratory Approach.* Cummings Publishing Co.
	2.	Chastain, K. (1970):*The Development of Modern Language Skills–Theory to Practice.* Rand Menally & Co., Chicago.
	3.	Dunkin, M.J. (Ed.)(1987):*The International Encyclopedia of Teacher and Training Education,* Pergamon Press, N.Y.
	4.	Erickson, H.L. (2002): *Concept-based Curriculum and Instruction.* Crown Press, Inc. California.
	5.	Jangira, N.K. & Ajit Singh. (1992): *Core Teaching Skills– A Microteaching Approach,*
	6.	NCERT–New Delhi. Kauchak, D.P. & Paul, D. Eggen (1998): *Learning and Teaching.* Allen & Bacon. Sydney.
	7.	MHRD (1986)- *Towardsa Humanand Enlightened Society– Review of NPE*, New Delhi.
	8.	NCERT (2005): *National Curriculum Framework*, New Delhi.
	9.	*National Curriculum for Elementary and Secondary Education (1998) – A Framework,* NCERT, New Delhi.
	10.	Petty, W.T. (1978): *Curriculum for the Modern Elementary School*, Rand Menally College Public Co, Chicago.
	11.	Rubin, D.(1980): *Teaching Elementary Language Arts*, Holt Reinhart & Winsten, N. York.
	12.	Singh, L.C. (Ed.) (1987): *Teacher Education–A Resource Book*, NCERT, New Delhi.
	13.	*The Study of Primary Education –A Source Book*, Volume I & II, 1984
	14.	Victor& Learner (1971): *Readiness in Science Education for the Elementary School*, McMillan Co., N.Y.
	15.	Wragg, E.C. (1984):*Classroom Teaching Skills*, Croom Helm, London
	16.	Anderson, C and K. Roth. (1992). Teaching for meaningful and self regulated learning of science. Advances in Research of Teaching, Vol. I, J. Brophy, ed. Greenwich, Conn: JAI.

	17. Kurrian, J. (1993).*Elementary Education in India*.New Delhi: Concept Publication. 18. દવે, જે., પટેલ, એમ., પટેલ, વી., શેલત, એન., ને જોશી, પી.(૧૯૮૭). *અધ્યાપન અધ્યયનપ્રવિધિ, અને શૈક્ષણિક માપન અને મુલ્યાંકન અને આંકડાશાસ્ત્ર*.અમદાવાદ :બી.એસ.શાહપ્રકાશન. 19. પટેલ, એમ. (૧૯૯૭). પ્રાથમિક શિક્ષણ એક અવલોકન. અમદાવાદ: શ્વેતા પ્રકાશન. 20. http://gcertgujarat.blogspot.in/ 21. http://gujarat-education.gov.in/ssa/projects/pragna_project.htm 22. http://www.gunotsav.org/
Teaching Methodology	Group discussion, Self Study, Seminar/ Presentation, Group and individual field-based assignments
Evaluation Methods	30% Internal assessment based on class attendance, participation, assignment, internal examination, etc. 70% External based on semester end University examination

Course: 304 SCCS Curriculum, Management and Pedagogy in SecondaryEducation

Course Code	304
Course Title	**Curriculum, Management and Pedagogy in Secondary Education**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including.Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make the student understand the nature and functions of curriculum, and management ofsecondaryeducation and acquire pedagogical skills to work in the field of secondary education.
Course Objective	To make students acquainted with concepts of curriculum and management of secondary education and develop pedagogical understanding and skills.
Course Outcomes	The students will:

CO1	To develop insight for curriculum in secondary education
CO2	To develop an understanding of underlying principles of curriculum development at secondary stage
CO3	To understand administration and management at secondary schoollevel
CO4	To acquaint with pedagogy for secondary level education.
CO5	To understand effective uses of various models of teaching
CO6	To develop insight for assessment at secondary school level.

Mapping between COs with PSOs		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
	CO1							
	CO2							
	CO3							
	CO4							
	CO5							
	CO6							

Pre-requisite	Basics of Education and thinking

Course Content

UNIT – I **Curriculum**

1. Meaning and Concept of Curriculum at Secondary School Level (Standard 9 to 12).
2. Aims and Objectives of Curriculum at Secondary School Level
3. Guiding principles of curriculum development for secondary education
4. Planning of curriculum for curricular areas (as suggested in NCF 2005)
   - Language
   - Mathematics
   - Science
   - Social Sciences
   - Art Education
   - Health and Physical Education
5. Material and Aids for curriculum transaction at secondary School Level :Textbooks, Reference Books, Teachers' handbook, Library, Laboratories, Teaching Aids, Digital Recourses (characteristics, merits and demerits)

UNIT – II **Management**

1. School Management (Meaning, Concept, Need, Importance)
2. Management structure at different level (Institutions, their organization, functions, roles and responsibilities) :National, State, District (including Municipal Corporation), School
3. Availability and Management of Resources: Physical Resources, Human Resources and Financial Resources
4. School Supervision: Concept, Need, Purpose
5. Appointment process of Principals and Teachers at Secondary School Level in Gujarat
6. Assessment and Accreditation initiative in Gujarat

UNIT – III **Pedagogy- I**

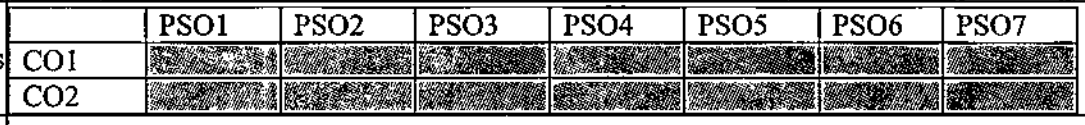
1. Child centered pedagogy: Concept, Learners in Context, Development and Learning
2. Concept of critical pedagogy
3. Constructivism and Social Constructivism (Concept, implication

		for secondary school curriculum transaction)
	4.	Process of knowledge construction for development of concepts, understanding, logical reasoning, critical thinking and problem solving
	5.	Instructional Objectives: Bloom's taxonomy, Revised Bloom's taxonomy (Anderson and Krathwohl), Ways to state and use instructional objectives (Mager's recommendations, Gronlund's recommendations) Formulation of instructional objectives (Gro
	6.	Information Processing Theory and Model
	UNIT – IV	**Pedagogy- II**
	1.	Learning Tactics: Rehearsal, Mnemonic Device, Self-Questioning, Note taking
	2.	Models of Teaching: Concept, characteristics, and importance
	3.	Models of Teaching: • Self-Control Model • Concept Attainment Model • Inductive Thinking Model • Advance Organizer Model • John Keller's ARCS Model of Motivational Design
	4.	School based Continuous and Comprehensive Evaluation at Elementary School Level (Present Practice)
Reference Books	1.	Aggarwal, Deepak (2007): *Curriculum development: Concept, Methods and Techniques.*New Delhi. Book Enclave.
	2.	Bhattacharya S. P. (1994).*Models of Teaching.*New Delhi: Regency Publications.
	3.	Biehler, R. F., & Snowman, J. (1993).*Psychology applied to teaching (7th ed.)*. Boston: Houghton Mifflin.
	4.	Erickson, H.L. (2002): *Concept-based Curriculum and Instruction.* Crown Press, Inc. California.
	5.	Joyce,B. R., Weil, M. and Calhoun,E. (2011).*Models of Teaching (7th Ed.)*.USA: Pearson Education.
	6.	Kauchak, D.P. & Paul, D. Eggen (1998): *Learning and Teaching.*Allen & Bacon. Sydney.
	7.	Kelley, C. (2012). *High school substitute teacher's guide: You can do this!* CreateSpace Independent Publishing Platform.
	8.	Larson, B. E., &Keiper, T. A. (2011).*Instructional strategies for middle and*

	secondary social studies: Methods, assessment, and classroom management.New York: Routledge. 9. NCERT (2005): *National Curriculum Framework*, New Delhi. 10. Savage, J. (2014). *Lesson planning: Key concepts and skills for teachers*. Routledge 11. Waring, M., & Evans, C. (2014).*Understanding pedagogy: Developing a critical approach to teaching and learning*.Routledge. 12. ચૌધરી ,આર ,.બી).૧૯૯૯ .(*ભારતીય શિક્ષણની વિત્તીય વ્યવસ્થા* .અમદાવાદ :યુનિવર્સિટી ગ્રંથનિર્માણ બોર્ડ. 13. ચૌધરી ,આર ,.બી).૨૦૧૦ .(*વિદ્યાલયોમાં નિરીક્ષણ-વ્યવસ્થા અને માનવ-સંબંધો* .અમદાવાદ: પ્રમુખ પ્રકાશન. 14. દવે ,જે ,.પટેલ ,એમ ,.પટેલ ,વી ,.શેલત ,એન ,.ને જોશી ,પી).૧૯૮૭ .(*અધ્યાપન-અધ્યયન પ્રવિધિ ,અને શૈક્ષણિક માપન અને મુલ્યાંકન અને આંકડાશાસ્ત્ર*.અમદાવાદ :બી.એસ.શાહ પ્રકાશન. 15. દેસાઈ ,ડી .એમ .ને .ચૌધરી ,આર ,.બી).૧૯૯૭.(*શૈક્ષણિક આયોજન*.અમદાવાદ :યુનિવર્સિટી ગ્રંથનિર્માણ બોર્ડ. 16. દોંગા, એન) .૨૦૦૭ .(*શિક્ષણનું મનોવિજ્ઞાન*.રાજકોટ :નિજ્જિન સાયકો સેન્ટર.. 17. દોંગા ,એન) .૨૦૧૦ .(*શિક્ષણનું મનોવિજ્ઞાન)૨જી આવૃત્તિ.(* અમદાવાદ :નીરવ પ્રકાશન. 18. ભોગાયતા ,સી) .૨૦૦૩ .(*અધ્યાપન પ્રયોજિત મનોવિજ્ઞાન.* અમદાવાદ:પાર્શ્વ પ્રકાશન.
Teaching Methodology	Group discussion, Self Study, Seminar/ Presentation, Group and individual field-based assignments
Evaluation Methods	30% Internal assessment based on class attendance, participation, assignment, internal examination, etc. 70% External based on semester end University examination

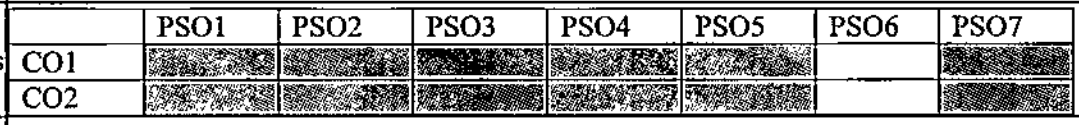
Course: 305Internship – Related to Specialization

Course Code	305
Course Title	**Internship – Related to Specialization**
Credit	4
Teaching per	Students do internship in school for 4 weeks

Week	
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2017
Purpose of Course	The purpose of the course is to provide real field experience of the future profession.
Course Objective	To make students acquainted with the knowledge, understandings and skills for future profession.
Course Outcomes	The students will: **CO1** Acquire knowledge and skills required for the future profession. **CO2** Work as a professional in an educational institute.
Mapping between COs with PSOs	
Pre-requisite	Basics of education and selected field of specialization.
Course Content	1.Each internship has duration of 04 Weeks 2.Should be Design with the previous concern, guidance and collaboration of the Host Institute about suggesting aspects for study/work/focus. 3.Faculty and Mentor Teacher of the Host institution should be consulted in advance. 4.It should be seen as a mentor component by a Faculty and a Mentor Teacher from the Host Institution to guide a group of 3 - 5 students. 5.Orientation for students and Mentor Teacher and faculty should be organized before organizing the Internship.
Reference Books	Students refer library and online resources
Teaching Methodology	Field Based Work (Internship)
Evaluation Methods	100% External assessment by the mentor of the host institution on the bases of attendance, work performed by the student in the institute and professional skills developed by the student.

Course: 306Research Paper Writing Workshop andPresentation

Course Code	**306**
Course Title	**Research Paper Writing Workshop and Presentation**
Credit	1
Teaching per Week	2 Hrs
Minimum	15 (Including Classwork, examination, preparation, holidays etc.)

weeks per Semester	
Effective From	June 2016
Purpose of Course	The purpose of the course is to make the student understand the concept, component and procedure of research paper and acquire skills to prepare and present research paper.
Course Objective	To make students acquainted with the skills of preparing and presenting research paper.
Course Outcomes	The students will: **CO1** Understand the concept of research paper and components of a research paper. **CO2** Develop the skills to prepare and present research paper.
Mapping between COs with PSOs	
Pre-requisite	Basics ofeducation, academic writing and educational research.
Course Content	A workshop for research paper writing Students will prepare a research paper under the guidance of a faculty. Students will present their paper in front of peers and a panel of faculty.
Reference Books	Online/offline resources for educational research.
Teaching Methodology	To be carried out under close mentorship/guidance of a Faculty member .Daily regular guidance cum tutorial period is arranged in time-table.
Evaluation Methods	100% Internal assessment based on the research paper prepared and its presentation

Course: 307Preparation of Reflective report of any two educational articles published in newspaper related with specialization

Course Code	307
Course Title	**Preparation of Reflective report of any two educational articles published in newspaper related with specialization**
Credit	1
Teaching per Week	2 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016

Purpose of Course	The purpose of the course is to develop the skill of reflection on the current educational articles published in the newspaper.
Course Objective	To make students acquainted with the skill of reflection and academic writing .
Course Outcomes	The students will: **CO1** Review the newspaper articles. **CO2** Prepare a reflective report.
Mapping between COs with PSOs	
Pre-requisite	Basics ofeducation and academic writing.
Course Content	The Students identifies two newspaper articles related with the specialization they choose. Students will prepare a reflective report by reviewing the newspaper article under the guidance of a faculty.
Reference Books	Newspapers
Teaching Methodology	To be carried out under close mentorship/guidance of a Faculty member .Daily regular guidance cum tutorial period is arranged in time-table.
Evaluation Methods	100% Internal assessment based on the reflective report submitted by the student.

Course: 308 Dissertation Guidance : Draft of Fourth Chapter

Course Code	308
Course Title	**Dissertation Guidance : Draft of Fourth Chapter**
Credit	1
Teaching per Week	2 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make students capable for analyse and interpret the data collected for their research work.
Course Objective	To make students acquainted with the skill data analysis and interpretation.

<table>
<tr><td>Course Outcomes</td><td>The students will:

CO1 Analyse the data using appropriate statistical method.
CO2 Make interpretation of the analysed data
CO3 Write the fourth chapter of their research report (M.Ed. Dissertation)</td></tr>
<tr><td>Mapping between COs with PSOs</td><td><table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td><td>PSO6</td><td>PSO7</td></tr><tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>Pre-requisite</td><td>Basics ofeducational research.</td></tr>
<tr><td>Course Content</td><td>M.Ed. Dissertation Chapter 4 (Data analysis and Interpretation)</td></tr>
<tr><td>Reference Books</td><td>Online/offline resources for educational research.</td></tr>
<tr><td>Teaching Methodology</td><td>To be carried out under close mentorship/guidance of a Faculty member.Daily regular guidance cum tutorial period is arranged in time-table.</td></tr>
<tr><td>Evaluation Methods</td><td>100% Internal assessment based on the research report submitted by the student.</td></tr>
</table>

M.Ed. Semester – 4

Paper Code	Subjects /Curriculum component	Credit	T Cr	P Cr	Internal Assessment (marks)	External Assessment (marks)	Total Marks
401 PCC	History And Political Economy of Education	4	3	1	30	70	100
402 ESTC	Elective Specialization Thematic course -1 (Select any one of the following) 1. Pedagogy and Assessment 2. Educational Management and Leadership 3. Inclusive Education 4. Educational Policy and Policy Research 5. Educational Finance in India	4	3	1	30	70	100
403 ESTC	Elective Specialization Thematic course -2 (Select any one of the following) 1. ICT in Education 2. Educational Administration and Leadership 3. Guidance and counselling 4. Value Education and Human Rights 5. Planning in Education	4	3	1	30	70	100
404 TE –FE	Internship – Related to Specialization	4		4		100	100
405 RPD	Dissertation Guidance, Submission and Viva-voce	4		4		100	100
	Total	**20**	**9**	**11**	**90**	**410**	**500**

M.Ed. Semester- 4

Course: 401: HISTORY AND POLITICAL ECONOMY OF EDUCATION

Course Code	**401**
Course Title	**History And Political Economy of Education**
Credit	4

Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Class work, practical Self Learning , examination, field work, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make students familiar with History Of Education In India, National Educational Movement, Politics In Education And Education And Economic Development
Course Objective	• To develop knowledge and understanding of the history of education. • To understand the historical foundation of education as manifest in the historical documents such as the reports of different commissions and committees. • To get acquainted with the different aspects of growth of the national system of education. • To get acquainted with the role of politics in education. • To get acquainted with the role of education in economic development
Course Outcomes	**CO1**: Explain the students the concept of insight of the History Of Education In India, National Educational Movement, Politics In Education And Education And Economic Development. **CO2** :Explain students the understanding of historical foundation of education as manifest in the historical documents such as the reports of different commissions and committees **CO3**: Explain students To get acquainted with the different aspects of growth of the national system of education. **CO4** : Explain students to get aware with the role of politics in education. **CO5** : Explain students to get familiar the role of education in economic development.
Mapping between COs with PSOs	
Pre-requisite	Basics of Educational- History aspects, Political aspects and Economics aspects.

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							

Course Content	
	UNIT – I **HISTORY OF EDUCATION IN INDIA** 1. Need and importance of History of Education. 2. Education in Ancient India: Vedic, Buddhist, Jain, Islamic (aim, objective, curriculum, method of teaching and evaluation, impact on present education) 3. Education in Medieval India: Macaulay's Minute, Woods Dispatch, Sargent commission (merit- demerit ,impact on present education) 4. Discontentment against western system of education
	UNIT – II **NATIONAL EDUCATIONAL MOVEMENT** 1. Brief Review: University Education Commision:1948, Secondary Education Commission: 1952-53, Indian Education Commission: 1964-66, National policy on education 1968, New education policy 1986 2. New National Policy of Education: 1992(POA), Review of NCF 2005, and NCFTE 2009, Review of Yashpal committee report on Indian Higher education 2009, Review of RTE Act 2009
	UNIT – III **POLITICS IN EDUCATION** 1. Relationship between education and political systems. 2. Education in democracy with reference to multicultural & multilingual societies. 3. Constitutional provisions for education in India 4. New trends, problems and their possible solution of Indian Education system (primary to higher education) 5. Globalization and politics of Education
	UNIT – IV **EDUCATION AND ECONOMIC DEVELOPMENT** 1. Concept and Importance of Human Capital, Education and Human Capital Formation 2. Contribution of Education to Economic growth: Critical and Empirical Analysis, Social and Private Cost, Opportunity Cost and Unit Cost 3. Constitutional provisions for education in India 4. Education as an Investment, Returns/Benefits from Educational Investment 5. Manpower approach for Educational planning, management and finance

Reference Books	1.	Aggarwal, J.C. (2004) *Development of Education System in India.* New Delhi: Shipra.
	2.	Aggarwal, J.C. (2004) *Modern Indian Education.* New Delhi: Shipra.
	3.	Ansari, M.M., (1987) Education and Economic Development New Delhi, AIU Publication.
	4.	Banerjee, J.P. (1979) *Education in India : Past, Present, Future.* Calcutta: Gupta and Co. (Pvt.) Ltd.
	5.	Basu, A.N.(1947) *Education in Modern India.* Calcutta: Orient Book Co.
	6.	Dharmpal: Collected Writings Vol. III, The Beautiful Tree (Indigenous Indian Education in the Eighteenth Century), Other India Press, Mapusa Goa. (Gujarati/ Hindi Translation is available with the title: RALIYAMNU VRUKSHA Punarutthan Trust,9/B, Anannd Park, Baliyakaka Marg, Juny Dhor bazar, Kankariya, Ahmedabad-28)
	7.	*Indian Year Book on Education (Elementary Education). (*1964) New Delhi: NCERT.
	8.	Mukherjee, L. (1975) *Comparative Education.* Bombay: Allied Publishers.
	9.	Mukherjee, S.N. (1964). *Education in India, Today and Tomorrow.* Baroda:Acharya Book Depot.
	10.	Mukherjee, S.N. (1966). *History of Education in India (Modern Period)* Baroda: Acharya Book Depot.
	11.	Naik, J.P.(1965) *Educational Planning in India.* Bombay :Allied Publishers .
	12.	Prakash Sri. & Choudhury, S. (1994) Expenditure on Education: Theory, Models and Growth New Delhi, NIEPA
	13.	*Report of the Education Commission (1964-66) Education and National Development.* New Delhi: NCERT.
	14.	*Report of the Secondary Education Commission (1952-53)* Ministry of Education and Social Welfare. New Delhi: Government of India.
	15.	*Report of the University Education Commission (1948-49)* Ministry of Education Government of India.
	16.	Sharma, R L. (2006) *Comprehensive History of Modern Education.* New

	Delhi: Cyber Tech Publications. 17. Sharma,S.(2005) *History and Development of Higher Education in free* *India.* Jaipur; ABD Publishers. 18. Sodhi, T. S. (1978) Education and Economics Development Ludhiana, Mukand Publications. 19. Tilak, J.B.G. (1987) Economics of Inequality in Education New Delhi, Sage Publications. 20. Sethi, Vinita, (1997) Educational Development and Resource Mobilization New Delhi, Kanishka Publication. 21. Tilak, J.B.G. (1987) Economics of Inequality in Education New Delhi, Sage.
Teaching Methodology	The course would be taught through participatory approaches including Lecture, Symposium, Workshop, Panel Discussion, Case Study, Experiments , Problem solving Film Show.
Evaluation Method	30% Internal assessment based on class attendance, participation, practicum, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: 402: Pedagogy and Assessment (Elective paper-1)

Course Code	**402**
Course Title	**Pedagogy and Assessment**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Class work, Examination, Preparation, Holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to develop individual well equipped with pedagogical and assessment skills that orchestrate and promote student learning among teachers..
Course Objective	To make students acquainted with concepts of Pedagogy and Assessment and its applications in teaching-learning process, and to develop pedagogical skills in them.
Course Outcomes	Students will be able **CO1** To explain the concept of Pedagogy. **CO2** To describe the concept of Child Centered pedagogy. **CO3** To Understand the Tools and Techniques of Pedagogy **CO4** To know and understand the history and concept of Assessment.

	CO5 To develop an understanding of the concepts of measurement, evaluation and assessment. **CO6** To differentiate between measurement and evaluation. **CO7** To Understand the Tools and Techniques of Assessment. **CO8** To develop desirable skills, attitude and values in implementation of tools and techniques of Pedagogy. **CO9** To develop desirable skills, attitude and values in implementation of tools and techniques of Assessment.
Mapping between COs with PSOs	
Pre-requisite	Basic concept of Education, Components of teaching-learning process , Psychological theories and principles, Bloom Taxonomy, Knowledge of fundamentals of Technology and basic technological Skills
Course Content	**UNIT – I** **CONCEPT OF PEDAGOGY** 1. Pedagogy: Meaning, Scope and Objective 2. Child centered pedagogy: Development of Concept, Understanding, Logical Reasoning, Critical Thinking and Problem solving. 3. Devices of teaching: Meaning, Importance & Types. (Teaching-Fixed) **UNIT – II** **TECHNIQUES OF PEDAGOGY** 1. Techniques of Teaching: Lecture, Questioning, Project, Team Teaching, Workshop, Panel Discussion & Assignment 2. Memory Level (Herbetian Model), Understanding Level (Morrison Teaching Model) & Reflective level (Biggs and Hunt teaching Model) 3. Use of Blogs, YouTube, Digital Encyclopedia & Ted talks

	PSO1	PSO2	PSO3	PSO4	PSO5	PS06	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							
CO6							
CO7							
CO8							
CO9							

	UNIT – III **ASSESSMENT IN TEACHING-LEARNING** 1. Assessment-History, concept, Difference between – Measurement, Evaluation & Assessment 2. Importance of Assessment 3. Formative and Summative Assessment 4. Assessment for Learning: Concept & Principles **UNIT – IV** **TOOLS & TECHNIQUES OF ASSESSMENT** 1. Characteristics of Good Assessment Tools 2. Assessment Tools: Teacher made Test, Diagnostic Test, Checklist, Rubric and Portfolio 3. Assessment Techniques: Writing, Oral, Observing, Projects, Interview, Continues & Comprehensive Assessment
Reference Books	1. Blooms, et. Al., (1966): Taxonomy of Educational Objectives: Hand Book,(1) Cognitive Domain, New York: David Mckay Co. 2. Bloom Hatings and Madaus (1971): Handbook on Formative & Summative Evaluation of Student Learning New York: McGraw Hill Book Co. 3. Eble Robert, L (1966): Measuring Educational Achievement New Delhi:Prentice Hall. 4. Furst, E.J. (1958): Constructing Evaluation Instrument New York: David Mckay Co. 5. Groundland, N.E. (1958): Constructing Evaluation Instruments New York: David Mckay Co. 6. Groundland, N.E. (1976): Measurement and Evaluation in Teaching (3rd ed.) New York: Macmillan Co. 7. Hills, J.R. (1976): Measurement and Evaluation in the classroom Columbus, Ohio: A Bell Howell Co. 8. Krathwoh, et.al. (1966): Taxonomy of Educational Objectives: Handbook: 2, Affective domain, New York: David McKay Co. 9. Lindquist Evert F. (1955) (Ed.): Educational Measurement Washington, America council on Education. 10. Mangal S.K. & Mangal, U. Essentials of Educational Technology. 11. Meherens W.A. & Lehman J.J. (1973): Measurement and Evaluation in Education in Education and psychology New York: Holt, Rinehart & Winston, Inc. 12. Mager Robert F. (1962): Preparing Instructive Objectives Palo, Alto, California: Fearin Publishers. 13. Nunnaly, J.C. (1964): Educational Measurement and Evaluation New York: McGraw Hill Book Co. 14. Patel R.S. (2009) Statistical Methods for Educational Research Ahmedabad: Jay Publication. 15. Patel, R.S.: (2012) Statistical Techniques for Data Analysis (International Version) LAP LAMBERT Academic Publishing GmbH & Co. Saarbrucken, Germany. 16. Popham W.J. (Ed.) (1971): Criterion Referenced Measurement Englewood Cliffs, N.J.: Education Technology pub. 17. Thondike Robert, L & Elizabeth P. Hagen (1961): Measurement and Evaluation in psychology and Education (2nd ed.) New York: Wiley.

	18. Tuckman, B.W. (1975): Measuring Educational Outcomes New York: Harccurt Brace, Javanovich, Inc. 19. Wringghstone, J. Wayae (1956): Joseph Justman & Iewing Robbins: Evaluation in Modern Education New York: America Book Co. 20. Jha, A. S. (2009): Measurement and Evaluation Ahmedabad: Jay Publication
Teaching Methodology	Lecture, Participatory Approaches- Classroom Interaction, Discussion, Debate, Library search and Self-Study, Field work
Evaluation Method	30% Internal Assessment based on Class Attendance, Classroom Participation, Class test-quiz, practicum, Seminar, Internal examination, etc. 70% External based on semester End University Examination

Course 402: Educational Management and Leadership (Elective paper-2)

Course Code	**402**
Course Title	**Educational Management and Leadership**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Class work, Examination, Preparation, Holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to develop required educational management skills and leadership skills among students needed for school management and classroom management.
Course Objective	To make the student understand the concepts, principles, strategies, and models of Educational management and leadership; to develop skills to manage human and non-human resources and to develop necessary skills to implement them in the school and classroom context.
Course Outcomes	Students will be able **CO1** To explain the meaning, nature, functions and principles of Educational Management. **CO2** To explain the process of Educational Management. **CO3** To develop insight and skills for the improvement the field of Education. **CO4** To explain the meaning and importance of communication in Educational Management. **CO5** To explain the meaning, importance and principles of human relations in education. **CO6** To describe the concept of and need for management of

	education. **CO7** To develop an understanding of leadership in the context of education. **CO8** To manage performance and information systems in education. **CO9** To develop an understanding of planned change and information management system in education. **CO10** To understand concepts of time management, crisis management and anger management, and to develop time management, crisis management and anger management skills.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PS06	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							
CO6							
CO7							
CO8							
CO9							
CO10							

Pre-requisite	Basics of management and leadership, Basic concepts of Education, System Approach
Course Content	**UNIT – I** **EDUCATIONAL MANAGEMENT** 1. Definition and concept of management 2. Concept, Need and Objectives of Management of Education, Fayol's Principles of Management 3. POSDCORB (Planning, Organizing, Staffing, Directing, Co-ordination, Reporting, Budgeting) and PODC (Planning, Organizing, Directing, Control) approaches 4. Organizational context of management 5. Educational Manager: Functions, Mintzberg's Managerial Roles, Competencies and Skills, Managerial Creativity, Managerial Ethics **UNIT – II** **PERFORMANCE AND RESOURCE MANAGEMENT IN EDUCATIONAL INSTITUTIONS** 1. Scientific principles of management-CPM 2. Nature and characteristics of resource in education. 3. Need for resource management in education. ..Resources: Material resources, Human resource , Financial resource (concept, need, principles)

	4.	**Staff Development** : Need and Objectives of Staff Development, Approaches (Fragmented, Formalized, Focused), Methods and Process of Staff Development
	5.	**Managing People** : Crisis Management: Types of Crisis on the basis of Crisis, Responsibility, Stages of Crisis, Steps of Crisis Management, Role of Crisis Manager, Anger Management: Sources of Anger, Strategies for handling Anger, Time Management: Obstacles to Time Management, Strategies for Effective Use of Time, Maintaining Relationships with principal.
	UNIT – III	**EDUCATIONAL MANAGEMENT PRACTICE IN THE PRESENT DAY CONTEXT**
	1.	Meaning, nature, scope and principles of modern scientific management
	2.	Systems approach to operational management in education
	3.	**Performance Management:** Performance Management: Principles, Process and Concerns, Application of Performance Management: Individual Performance and its Relationship with Organizational Development, Concept of Pay for Performance in Education, Measuring Performance: Performance Appraisal with reference to its Purpose and Process, Tools and Techniques, Performance Based Assessment System (PBAS) with reference to Academic Performance
	4.	**Management of Information Systems:** Concept of Integrated Information Management System, Types of Information Systems, Five Sub Systems of an Institution, Uses of Management Information System (MIS) in Education, Positive and Negative Impacts of Information System, Knowledge Management: Concept, Knowledge Management Process Model, The Japanese Models of Change: Just in Time, Poka yoke, Consensus Consultation Involvement, Kaizen, Flexibility and Teamwork
	UNIT – IV	**CONTROLLING AND LEADERSHIP STYLES IN EDUCATIONAL MANAGEMENT**
	1.	Centralization Vs. Decentralization styles in educational management
	2.	PERT, PPBS, Control and methods of controlling

	,Control-diameter, unity of command 3. System Evaluation, Programme Evaluation and Evaluation of Functionaries 4. Leadership for effective management : Characteristics of Leader and Manager, Effective and Successful Leader to Leadership: Trait, Transformational, Transactional, Value Based, Cultural 5. Theory and Practice: Blake and Mouton's Managerial Grid, Fiedler's Model, Hersey and Blanchard's Model, Leader-Member Exchange Theory, Path Goal Theory
Reference Books	1. Andrew M.,(1970). *Management Development and Management by Objectives for the Line Manager.* Bombay : Somaya Publications Pvt. Ltd. 2. Chandrasekaran, Premila, (1997). *Educational Planning and Management.* New Delhi : Sterling Publishers Pvt. Ltd. 3. Ediger, M. & Rao, D. B. (2007). *Improving School Administration.* New Delhi: Discovery publishing House. 4. Goel, Aruna and Goel, S. L. (2009). *Educational Administration and Management An Integrated Approach.* New Delhi :Deep & Deep Publications Pvt. Ltd. 5. Hampton, David R., (1974*). Modern Management issues and Ideas*. New Delhi: Prentice Hall of India, Pvt. Ltd. 6. Hyneryager, S. G. & Heckman, T. (1980). *Human Relations in Management.* Bombay : Taraporvala & Sons. 7. Lundy, James L.(1964). Effective Industrial Management. New Delhi :Eurasia Publishing house, Pvt. Ltd. 8. Mathur, S. S. (1967). Educational Administration : Principles and Practices.Jullander : Krishna Brothres. 9. Mukerji, S. N. (1962). Administration of Education, Planning and Finance.Baroda ; Acharya Book Depot. 10. Raviprakash, T. (2005). Advance Educational Adminnistration.New Delhi : Kanishak Publishers. 11. Robbins, S. P. (1998). Organizational Behavior :Concepts, Controversies, Applications(8th Ed.). New Delhi : Prentice Hall of India. 12. Sharma, B. M. (2008). Classroom Administration. New Delhi:Commonwealth Publishers. 13. Sharma, R. C., (1968). *Theory of Educational Administration.* New Delhi : NCERT, Department of Educational Administration. 14. Singh, B. (2006). *Modern Educational Administration.* New Delhi : Anmol Publication Pvt. Ltd. 15. Yadav, S. (2006). *School Mangement and Pedagogies of Education.* New Delhi : Anmol Publication Pvt. Ltd.
Teaching Methodology	Lecture, Group discussion, Self Study, Seminar/ Presentation, Group and individual field-based assignments/practicums

Evaluation Method	30% Internal Assessment based on Class Attendance, Classroom Participation, Class test-quiz, practicum, Seminar, Internal examination, etc. 70% External based on semester End University Examination

Course 402: Inclusive Education ((Elective paper-3)

Course Code	**402**
Course Title	**Inclusive Education**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Class work, Examination, Preparation, Holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to bring about an understanding of the cultures, policies and practices' that need to be addressed in order to create and work in an inclusive school, and to identify the dominating threads that contribute to the psychosocial construct of disability and identity.
Course Objective	To make students acquainted with concepts of Inclusive Education and its applications in school and classroom level.
Course Outcomes	**CO1** Understand concept, meaning and significance of inclusive education **CO2** Appreciate the need for promoting inclusive practice and the roles and responsibilities of the teachers **CO3** Develop critical understanding of the recommendations of various commissions and committees towards teacher preparation for inclusive education, **CO4** Explain the nature of difficulties encountered by children **CO5** Prepare knowledge, values and skills for inclusive schools, **CO6** Analyze special education, integrated education, mainstream and inclusive education practices, **CO7** Identify and utilize existing resources for promoting inclusive practice.
Mapping between COs with PSOs	
Pre-requisite	Concept of Disability, Types of Disability and their needs, Individual Differences
Course Content	**UNIT – I Introduction of Inclusive Education and Teacher Preparation**

	PSO1	PSO2	PSO3	PSO4	PSO5	PS06	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							
CO6							
CO7							

	1.	Definition, concept and importance of inclusive education.
	2.	Historical perspectives of inclusive education f or children with diverse needs.
	3.	Difference between special education, integrated education and inclusive education.
	4.	Advantages of inclusive education for education for all children in the context of right to education.
	5.	Teaching skills and competencies, Professional ethics
	6.	Institution training teachers for inclusive education, Professional growth of teachers and teacher educators
	UNIT – II	**National and International Initiatives-I**
	1.	Recommendations of the Indian Education Commission (1964-66).
	2.	Scheme of Integrated Education for Disabled Children
	3.	National Policy on Education (NPE, 1986-92), The Persons with Disabilities Act (PWD Act, 1995) & National Curriculum Framework, 2005 NCERT
	4.	The Convention on the Rights of the Child (Article 23, 28, 29 a2, 3, 6 and 10 &12).
	5.	The World Declaration on the Survival, Protection and Development of Children and the Plans of action (Outcome of the UNICEF World Summit for Children, (1990).
	6.	The World Conference on Special needs Education and the Salamanca, 1994 Statement and framework for action on Special Needs Education
	UNIT – III	**National and International Initiatives-II**
	1.	Project PIED, IEDC Scheme 1974 AND 1981
	2.	DPEP, SSA.
	3.	Centrally sponsored Schemes, N.G.O involvement—teacher preparation
	4.	The Mental Health Act 1987.
	5.	Rehabilitation Council of India Act, 1992
	6.	The National Trust for the Welfare of Persons with autism, cerebral palsy, mental retardation and Multiple Disabilities Act 1999.
	UNIT – III	**National and International Initiatives-II**
	1.	Project PIED, IEDC Scheme 1974 AND 1981.
	2.	DPEP, SSA.
	3.	Centrally sponsored Schemes, N.G.O involvement—teacher preparation
	4.	The Mental Health Act 1987.
	5.	Rehabilitation Council of India Act, 1992
	6.	The National Trust for the Welfare of Persons with autism, cerebral palsy, mental retardation and Multiple

	Disabilities Act 1999. **UNIT – IV** **Current Issues in Inclusive Education** 1. Inclusion of all children with diverse needs in existing schools 2. Early identifications and placement in inclusion, 3. Development of plus curriculum 4. Coordination and utility of resources 5. N.C.F and adaptation of teaching learning material 6. Research priority in inclusive education
Reference Books	1. Ainscow, M., Booth. T (2003): *The Index for Inclusion: Developing Learning and Participation in Schools.* Bristol: Center for Studies in Inclusive Education 2. Jha. M.(2002) *Inclusive Education for All: Schools Without Walls,* Heinemann Educational publishers, Multivista Global Ltd, Chennai, 600042, India. 3. Sharma P.L (2003) *Planning Inclusive Education in Small Schools*, R.I.E. Mysore 4. Sharma, P.L. (1990) *Teachers handbook on IED-Helping children withspecial needs* N. C. E R T Publication. 5. Sharma,P.L (1988)Teacher Handbook –Helping children with special needs, Unicef assisted publication, N.C.E.R.T New Delhi.
Teaching Methodology	Lecture, Symposium, Workshop, Panel Discussion, Live Visits, Experiments
Evaluation Method	30% Internal Assessment based on Class Attendance, Classroom Participation, Class test-quiz, practicum, Seminar, Internal examination, etc. 70% External based on semester End University Examination

Course 402: Educational Policy and Policy Research (Elective paper-4)

Course Code	**402**
Course Title	**Educational Policy and Policy Research**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Class work, Examination, Preparation, Holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make students analyze and evaluate various educational policies and issues involved in implementing policies.
Course Objective	To bring about an awareness of the various level Educational policies and their recommendations to Education and to identify the issues involved in implementing those polices.

Course Outcomes	**CO1** To understand the formulation of educational policy. **CO2** To know the procedure of policy implementation. **CO3** To learn about the monitoring of the issues involved in implementing policies. **CO4** To understand and analyze the policy research. **CO5** To understand the Linkage between education policy and national development policy

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PS06	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							

Pre-requisite: Various Education policies, Role of Education policies in education

Course Content

UNIT – I **FORMULATION OF EDUCATIONAL POLICY**

1. Type of Education Policy - national, state level, institutional, short-term, long-term
2. Need and importance of educational policy
3. Determinant of Educational Policy
4. Educating policy vis-à-vis development policy
5. School development policy

UNIT – II **POLICY IMPLEMENTATION**

1. Formulation of Plan of Action
2. Policy parameters - formulation of programmes and strategies
3. Identification of implementation agencies
4. Role of civil society and NGO in policy implementation
5. Issues involved in implementation

UNIT – III **MONITORING AND EVALUATION OF POLICY IMPLEMENTATION**

1. Monitoring - issues involves
2. Evaluation strategies
3. Setting evaluation criteria

UNIT – IV **POLICY RESEARCH**

1. Concept
2. Analysis of documents
3. Research Surveys
4. Evaluation studies, impact evaluation, process evaluation
5. Linkage between education policy and national development policy

Reference Books	1. Blackmore, C., and Lauder, H. (2004): *Researching Policy*, in Somekh, 2. B., and Lewkin C. (2004*) Ed. Research Method in the Social Sciences'*. 3. Freeman, A.M., III (1993): *The Measurement of Environmental and Resource Values: Theory and Methods*. Washington, D.C. 4. Mitchell, R.C., and R.T. Carson (1989):*Using Surveys to Value Public Goods: Contingent Valuation Method.* Washiongton, D.C 5. Nagel, S., and Neef, M (1979): *Policy Analysis in Social Science Research*, London: sage Publications 6. Nisbet, J.D. (1988): *Policy Oriented Research*, in Keevs, J.P. (ed) *EDUCATIONAL research Methodology and Measurement: An International Handbook'*. Pergamon Press Plc. 7. Nordhaus, W.D. (1998): *Economic and Policy Issues in Climate Change*. Washington, D.C. 8. Trow, M. (1988): Policy Analysis, in Keevs, J.P. (ed) *'Educational Research Methodology and Measurement: An International Handbook.'* Pergamon Press Plc. 9. Wildavsky, A. (1979): 'The *Art and Craft of Policy Analysis'*, London: Macmillian Press Ltd. Pp 3-21 10. Govt. of India, MHRD (1982) *NPE and its POA (1986/1992)*
Teaching Methodology	Lecture, Classroom Interaction, Debate, Library Work, Field Work
Evaluation Method	30% Internal Assessment based on Class Attendance, Classroom Participation, Class test-quiz, practicum, Seminar, Internal examination, etc. 70% External based on semester End University Examination

Course 402: Educational Finance in India (Elective Paper-5)

Course Code	**402**
Course Title	**Educational Finance in India**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Class work, Examination, Preparation, Holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to aware student about expenditure and sources of finance in Education; to make them capable to prepare school budget.
Course Objective	Students get acquainted with the meaning, concept, importance and principles of educational finance, and to prepare a school budget.
Course Outcomes	**CO1** State the objectives of expenditure and source of finance during post independence in India. **CO2** Explain the meaning, concept, importance and principles of educational finance.

	CO3 Get acquainted with the meaning and types of Grants- in-aid. **CO4** Prepare school budget. **CO5** Analyze the relationship between the financial support of education and quality of education, **CO6** Develop familiarities with various sources of financing in India **CO7** Understand school accounting and developing skill in school budgeting.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PS06	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							
CO6							
CO7							

Pre-requisite	Basic concepts of Education, Basic knowledge of Mathematics and Statistics, Technology- Spreadsheet, MS Excel
Course Content	**UNIT – I** **EDUCTIONAL FINANCE IN INDIA** 1. Meaning, Concept, Need, Significance, Principles & Importance of educational finance 2. Meaning of Grant-in aid 3. Types of Grant-in aid 4. Financing education for: equality of education-social justice 5. Efficiency-cost-minimization and quality improvement **UNIT- II** **OBJECTS OF EXPENDITURE** 1. Direct Objects : Primary education, Secondary education, Higher education, Professional education 2. Indirect Objects : Direction and Inspection, Building and Scholarship and financial concessions, Hostel expenditure 3. Education and economical development **UNIT – III** **SOURCE OF FINANCE** 1. Contribution of Central & State Government 2. Contribution of Local Institutions: Contribution of Municipalities, Contribution of Panchayats, Contribution of Private and Self-financed educational Institutions. 3. Educational finance in last three five-year plans in India 4. Monitoring of expenditure control and utilization of funds, accounting and auditing. 5. Central-State Relationship in Financing of Education **UNIT – IV** **SCHOOL BUDGET, PROBLEMS AND SOLUTIONS OF**

	EDUCATIONAL FINANCE IN INDIA 1. Planning of school budget 2. Budget making process 3. Functions of University Grants Commission (UGC) 4. Problems regarding educational finance in India 5. Solutions regarding problems of educational finance in India.
Reference Books	1. Aggarwal, J. C. (1997). *Development and Planning of Modern Education.*(6th Ed.). New Delhi : 576, Masjid road, Jangp Vikas Publishing House Pvt. 2. Aggarwal, J. C. (2008). *History of Modern Indian Education.* (6th Ed.). New Delhi : 576, Masjid road, Jangpura Vikas Publishing House Pvt. 3. Aggarwal, J. C. (2004). *Development of Education System in India,* New Delhi : Shipra Publications 115-A, Vikas Marg, Shakarpur.House Pvt. Ltd. 4. Agarwal, R. B. (1993). *Financing of Higher Education in India* Varansi : Ganga Kaveri Publishing Housing 5. Bhatnagar, R. P. and Agarwal, Vidya, (1997). *Educational Administration,Supervision, Planning and Financing.* Meerut :Surya Publications, Near Government Inter College 6. Chalam, K. S. *Educational Policy for Human Resource Development.* Jaipur: Rawal Publications, 3-Na-20, Jawahar Nagar. 7. Government of India, *Five Year Plans.* New Delhi : Planning Commission. 8. Griffiths, V. L. (1972). *Educational Planning.* London : Oxford University Press. 9. John, R. L and Morphet, E. L. (Ed.). (1952). *Problems and Issues in Public School finance.* New York : Columbia University 10. Ministry of Finance, (1995). *Economic Survey.* New Delhi : Economic Division. 11. Ministry of Human Resources Development. (1993). *Selected Educational Statistics.* New Delhi 12. Misra Atmanand, (1973). *Grant-in –Aid of Education in India.* New Delhi : The Macmillan Company of India, Ltd. 13. Mathur, S.P. (2001): *Financial Administration and Management.* The Indian Publications, India. 14. Ramcharan Padma & R. Vasantha (2005): *Education in India.* New Delhi: National Book Trust 15. Shri Prakash and Chowdhary, Sumitra. (1997). *Expenditure Education : Theory, Models and Growth.* New Delhi NUEPA, 16. UNESCO. (1963). *Economic and Social Aspects of Educational.Planning.* Paris : Place De Fontenoy
Teaching Methodology	Lecture, Symposium, Workshop, Panel Discussion, Group Discussion, Self-study, Seminar Presentations, Case-study, Experiments, Film-show Work, Field Work

Evaluation Method	30% Internal Assessment based on Class Attendance, Classroom Participation, Class test-quiz, practicum, Seminar, Internal examination, etc. 70% External based on semester End University Examination

Course: 403: 1.ICT IN EDUCATION

Course Code	403
Course Title	**ICT in Education**
Credit	4
Teaching per Week	5 Hr
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make students familiar with Information and Communication Technologies, Computer and Internet Fundamentals & Enhancing Education with ICT.
Course Objective	• To understand the scope and means of ICT and its applications in education. • To develop an understanding of the strategies for designing instruction. • To get acquainted with the instructional applications of Internet and web resources. • To Develope an understanding of the ethical principles governing the use of Information and Communication Technology in education. • To Understand the scope and means of enhancing education by using various ICTs.
Course Outcomes	**CO1:** Explain the students the Concept, Need and Importance of ICT in Education. **CO2** : Explain students the understanding of Application of ICT in Teaching-learning, Assessment, Professional Development, School Management and Paradigm Shift due to ICT, Criteria for selecting ICT Resources & Misuse of internet, Legal and ethical issues. **CO3:** Explain students To get acquainted with Instructional Design and Communication, Introduction to a personal computer, Internet & concepts related with internet. **CO4 :** Explain students to get acquainted with Concept and characteristics of Web Based Instruction, M-Learning, MOOC, CAI and CAL. **CO5 :** Explain students to get familiar the Course Management Systems,. Flipped

	Classroom, Virtual Classroom, Open Educational Resources and Social Media.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							

Pre-requisite	Basics of Information and Communication Technologies aspects and knowledge of how to Enhance Education with ICT.

Course Content

UNIT – I **Information and Communication Technologies – an Introduction**

1. Concept, Need and Importance of ICT in Education.
2. Paradigm Shift due to ICT: Teacher in a digital era-Changing role and competencies
3. Application of ICT in Teaching-learning, Assessment, Professional Development, School Management.
4. Instructional Design : Concept, characteristics, Models (ADDIE Model, Dick and Carey Model, Gagne's Model)

UNIT – II **Computer and Internet Fundamentals**

1. Introduction to a personal computer: Functional overview of a c (Personal Computer/Laptop/Tablet) and its parts and functions, O System (Windows and Linux – Ubuntu)
2. Internet: Concept, Use and Importance in Education (Except history).
3. Brief introduction of concepts related with internet: www, modem, E Hyperlink, website, homepage, E-mail, chat, http, FTP, Web 2.0
4. Search techniques for effective use of search engines to find text, audio, video; Exploring Online Encyclopedia (Encyclopedia Bri Wikipedia)
5. Criteria for selecting ICT Resources – Accuracy, Credibility, C Objectivity , Appropriateness, Cost and Copyrights
6. Misuse of internet, Legal and ethical issues (Copyright, Plagiarism, H Netiquette, Phishing, Software privacy)

UNIT – III **Enhancing Education with ICT-I**

1. Concept and characteristics of Web Based Instruction (WBI) ; Modes of WBI (Meaning, Characteristics, Applications, Advantages, Disadvantages) – Synchronous, Asynchronous, Blended.
2. Course Management Systems : Concept, Features and Application in Education

	3.	M-Learning (Mobile Learning): Meaning, Characteristics and Application
	4.	MOOC (Massive Open Online Course) : Meaning, types, Characteristics and Application
	5.	Concept, merit and demerits of CAI and CAL
	UNIT – IV	**Enhancing Education with ICT-II**
	1.	Flipped Classroom, Virtual Classroom: Concept, Merits, Demerits and Application
	2.	Open Educational Resources (OER): concept, merit, demerits, creative commons licenses
	3.	Social Media: Concept, effective and safe use of following social media • Social Networking • Blog • Micro blog • Wiki • instant messaging apps • video sharing services
	4.	Cloud Computing: Concept, merits, demerits, application in education
Reference Books	1.	Ally, M., & Khan, B. (2015). *International Handbook of E-Learning Volume 2 Implementation and Case Studies.*Hoboken: Taylor and Francis.
	2.	Arshavskiy, M. (2013).*Instructional design for eLearning: Essential guide to creating successful eLearning courses.*S.l.: Your eLearning World.
	3.	Baase, S. (2013).*A gift of fire: Social, legal, and ethical issues for computing technology (4th ed.)*. Boston: Pearson.
	4.	Begum, J. ,Natesan ,A .K.., &Sampath, G. (2011). *ICT in Teaching Learning.* New Delhi: A.P.H. icationPubl.
	5.	Branch, R. (2009).*Instructional design: The ADDIE approach.*New York: Springer.
	6.	Duffy, T. M., & Cunningham, D. J. (1996).*Constructivism: Implications for the design and delivery of instruction.* In D. Jonassen (Ed.), Handbook of Research for Educational Communications and Technology (pp. 170-198). New York: Simon & Schuster Macmillan
	7.	Duffy, T., &Jonassen, D. (2013).*Constructivism and the Technology of Instruction a Conversation.*Hoboken: Taylor and Francis.
	8.	Graham, D., & McNeil, J. (2000).*Untangled Web: Developing teaching on the Internet. Harrow,* England: Prentice Hall.
	9.	Haber, J. (2014). *MOOCs: Jonathan Haber.* (Online-Ausg. ed.). Cambridge, Massachusetts: The MIT Press.
	10.	http://enhancinged.wgbh.org/research/eeeee.html
	11.	http://nroer.gov.in
	12.	http://www.giapjournals.org/uploads/2/6/6/2/26621256/teachers_professional_development_through_ict.pdf
	13.	http://www.instructionaldesign.org/
	14.	http://www.youtube.com/

15. https://www.oercommons.org
16. https://www.wikimedia.org
17. Khan, B.H. (1997).*Web-Based Instruction*. New Jersey : Educational Technology Publications.
18. Mali, A. R. (2013). *Moodle Course Management System.*Toronto: Canadian Academic Publishing.
19. Mangal S.K. &Mangal Uma.*Essentials of educational technology.*PHI learning pvt.Ltd. 2010.
20. Mayer, R.E. (2001). *Multimedia Learning.* Cambridge: Cambridge University Press.
21. McGee, P. (2005). *Course management systems for learning beyond accidental pedagogy.* Hershey PA: Information Science Pub.
22. McQuiggan, S., &Kosturko, L. (n.d.).*Mobile learning: A handbook for developers, educators, and learners.*
23. Means, B., &Bakia, M. (2014).*Learning online: What research tells us about whether, when and how.*Routledge
24. Ormiston, M. (2011).*Creating a digital-rich classroom: Teaching & learning in a web 2.0 world. Bloomington, IN*: Solution Tree Press.
25. Passi, B.K. ,Khandai ,H., &Mathur , A. (2011). *Professional Development and ICT in Education.*New Delhi: A.P.H. Publication.
26. Poore, M. (2013).*Using social media in the classroom: A best practice guide.*Los Angeles, Calif.: SAGE.
27. Rathod, N. (2015). Becoming Digital Facilitator-2020:Why?, What?, How?. Teachers' ICT Skills Learning Ecosystem. Retrieved from http://tictsle.blogspot.in/p/being-digital-facilitator-y-ou-can.html
28. Reigeluth, C., &Chellman, A. (2009).*Instructional-Design Theories and Models III Building a Common Knowledge Base.* Hoboken: Taylor & Francis.
29. Reiser, R. A., & Dempsey, J. V. (2012).*Trends and issues in instructional design and technology.*Boston: Pearson.
30. Thompson J., Bakken J., Fulk B., Karlan G. (2004) 'Using Technology to improve the Literacy skills of students with disabilities' retrieved fromhttp://www.learningpt.org/pdfs/literacy/disability.pdf
31. Vaughan, T. (2011).*Multimedia: Making it work (8th ed.)*. New York: McGraw-Hill.
32. જોશી .બી) .૨૦૦૪ .(શિક્ષક પ્રશિક્ષણમાં ટેકનોલજિનો સમન્વય .શિક્ષણશાસ્ત્ર ભવન, &એલ .એલ.
33. કાકડિયા બી.એડ.કોલેજ)સં.માં ,(ગુણવત્તાકેન્દ્રી શિક્ષક પ્રશિક્ષણ .ભાવનગર :શ્રી સરદાર પટેલ સેવા ટ્રસ્ટ.
34. જોશી .બી) .૨૦૦૬ (*શૈક્ષણિક ટેકનોલોજીની વિસ્તરતી ક્ષિતિજો*) . *સં.*(ભાવનગર :ઇટીએફ પબ્લિકેશન
35. ઠાકર એમ .જે .અને અન્ય) .૨૦૧૧ (શિક્ષક પ્રશિક્ષણમાં માહિતી અને પ્રત્યાયન તકનિકી .)સં.(ભાવનગર :જી.એચ .સંઘવી શિક્ષણ મહાવિદ્યાલય.
36. પટેલ ,આર .એસ., શાહ ,એ .ડી .અને અન્ય)૨૦૦૩ .(*શૈક્ષણિક પ્રૌદ્યોગિકી અને પ્રબંધના*

	*આવશ્યક તત્વો*અમદાવાદ :નીરવ પ્રકાશન. 37. પટેલ, એલ.એન., પાડવી, એસ.સી., રાવલ ગી., પટેલ ડી .એસ., આઝાદ, પા., પરમાર જી., ને ગોસ્વામી, હી) .૨૦૧૪ .(*માહિતી અને પ્રત્યાયન પ્રોદ્યોગિકી* અમદાવાદ :અમોલ - વારિષણ પ્રકાશન. 38. પટેલ .આર .બી .અને મુલ્લા ,એસ .જી) .૨૦૧૨ .(શિક્ષણમાં માહિતી અને પ્રત્યાયન ટેકનોલોજી. સુરત :સોહેલ મુલ્લા પ્રકાશન. 39. માલી, એ .આર) .૨૦૧૫ .(ICTની વિવેચનાત્મક સમજ .અમદાવાદ :અમોલ પ્રકાશન. 40. માલી, એ .આર., ને ચોધરી આર .જી) .૨૦૧૫ .(*ICTનો શિક્ષણમાં વિનિયોગ* અમદાવાદ : અમોલ પ્રકાશન. 41. શાહ, ડી .બી) .૨૦૦૬ .(શિક્ષણમાં કમ્પ્યુટર .અમદાવાદ :નીરવ પ્રકાશન. 42. શુક્લ, એસ ..એસ., ઠાકર, એસ .એસ .અને અન્ય)૨૦૦૩ .(શૈક્ષણિક પ્રોદ્યોગિકી અને પ્રબંધની આવશ્યકતા .અમદાવાદ :વારીષેણ પ્રકાશન.
Teaching Methodology	The course would be taught through participatory approaches including Lecture, Symposium, self study, group discussion, use of digital resources & Group and individual field-based assignments.
Evaluation Methods	30% Internal assessment based on class attendance, participation, practicum, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: 403 – Educational Administration and Leadership

Course Code	403
Course Title	**Educational Administration and Leadership**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make students familiar with Educational Administration, Leadership and Educational Administration at various level, Schools of Philosophy and Human Relations Approach to Administration.

Course Objective	• Understand the concept of administration • Get acquainted with different dimensions of educational administration • Be aware about the role of headmaster and teacher • Gain insight about different styles of administrative practices • Understand structure of educational administration at various government level • Get acquainted with the meaning, concept, objectives, process, types, methods and techniques of supervision. • Get acquainted with the meaning, importance and principles of human relations in education.
Course Outcomes	**CO1:** Explain the students the Concept, Nature and Scope of Educational Administration. **CO2:**Explain students the understanding of process of Educational Administration, Development of modern concept of Educational Administration&Administrative Processes with special reference to Educational Organizations. **CO3:**Explain students To get acquainted Leadership and Educational Administration at various level especially leadership styles, elements of Educational Administration& existing problems of Educational Administration. **CO4 :** Explain students to get acquainted with Schools of Philosophy means concept and different forms of supervisions & inspection, its methods Evaluation for performance and Accountability & Defects in the present supervision and inspection **CO5** :Explain students to get familiarthe Human Relations Approach to Administration, its principles, Maslow's theory and human relations.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							

Pre-requisite	Basics of Education and thinking
Course Content	**UNIT – I** **EDUCATIONAL ADMINISTRATION** 1. Educational Administration: Meaning, Nature, Objectives, functions, Scope, & Basic Principles. 2. Process Of Educational Administration: Formation of objectives, Policy making, Educational planning, Organization process, Decision making process, Stimulating, C0-ordinating, Communicating, Controlling, Evaluation. 3. Development of modern concept of Educational Administration:

		Efficiency versus human relations–controversy, Human Approach, Taylorism
	4.	Administrative Processes with special reference to Educational Organizations: Administrative Communication, Decision Making, Organizational Development and Compliance, Management by Objectives(MBO), Organizational Change
	UNIT – II	LEADERSHIP AND EDUCATIONAL ADMINISTRATIC VARIOUS LEVEL
	1.	Leadership: Meaning and Concept
	2.	Leadership Styles: Motivational style, Supervisory Leadership, A leadership, Lasses Faire leadership Education for Values :Moral, Spiritual, Intellectual, Social Education for Citizenship
	3.	Elements of Educational Administration.
	4.	Educational administration at various level: Central level, state le level, University level, Open University level, private enterprise
	5.	Existing problems of educational administration in India
	6.	Factor influencing the system of educational administration
	UNIT – III	SCHOOLS OF PHILOSOPHY-I
	1.	Supervision in Education: Meaning and Definition of supervision, Modern concept of supervision, Academic Vs. Administrative supervision, supervision as a process: Social, Educational, Psychological, Supervision as a function
	2.	Supervision as leadership for providing guidance: Nature and Functions Types of supervisor, Qualities of a supervisor, Defects in present supervision
	3.	Different types of supervision: Authoritative supervision, Creative supervision, Organism supervision, Democratic supervision, Scientific supervision
	4.	Methods and techniques of supervision: Classroom observation, Conference, Workshop, Teachers' meeting
	5.	Supervision and inspection in education: Inspection Vs. Supervision
	6.	Evaluation for Performance and Accountability
	7.	Defects in the present supervision and inspection
	UNIT – IV	HUMAN RELATIONS APPROACH TO ADMINISTRATION
	1.	Meaning of human relation in education
	2.	Need and importance of human relations in educational administration
	3.	Principles and values of human relations in educational administration
	4.	Human relations among principal, supervisors, teaching –staff, non-teaching-staff, students, school- management, and educational officer
	5.	Maslow's Theory and Human relations
	6.	Process to increase staff harmony

	7. Organizational Behaviour with respect to Educational Institutions: Motivation, Job satisfaction, Relationships in organizational set up, Conflict Professionalism 8. Overcoming barriers to communication and effective communication in Human relationships
Reference Books	1. Barkey, John A., (1957). *Supervision as Human Relations*. Boston : Health and Company. 2. Bhatnagar, R. P. and Agarwal, Vidya, (1995). *Educational Supervision*. Meerut : Loyal Book Depot. Brown 3. Ediger, M. & Rao, D. B. (2007). *Improving School Administration*.New Delhi : Discovery publishing House. 4. Goel, Aruna and Goel, S. L. (2009). *Educational Administrationand Management An Integrated Approach*.New Delhi : Deep & Deep Publications Pvt. Ltd. 5. Greene, J.F., (1975): *School Personnel Administration*, Chilton Book Company :Pennysylvania, 6. Hyneryager, S. G. & Heckman, T. (1980). *Human Relations in Management*. Bombay : Taraporvala & Sons. 7. Khan, N. Sharif & Khan, M. Saleem,(1980): *Educational Administration*, New Delhi : AshishPublishing House, 8. Lulla, B.P. & Murthy, (1976): S.K., *Essential of Educational Administration*, Chandigarh :Mohindra Capital Publishing, 9. Manju, Bala, (1990):*Leadership Behaviour and Educational Administration, New Delhi :Deep & Deep Publications*, 10. Mathur, S.S., *Educational Administration and Management*, Ambala Cantt. : Indian Publicatons 11. Mukerji, S. N. (1962). *Administration of Education, Planning and Finance*. Baroda ; Acharya Book Depot. 12. Raviprakash, T. (2005). *Advance Educational Adminnistration*. New Delhi : Kanishak Publishers. 13. Sharma, B. M. (2008). *Classroom Administration*. New Delhi :Commonwealth Publishers. 14. Shukla, P.D. (1983). *Administration of Education in India*. New Delhi: Vikas.
Teaching Methodology	The course would be taught through participatory approaches including Lecture, Symposium, Workshop, Panel Discussion, Library Exploration,Seminar, Field visit.
Evaluation Method	30% Internal assessment based on class attendance, participation, practicum, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: 403: 3. GUIDANCE AND COUNSELLING

Course Code	**403**
Course Title	**Guidance and Counselling**
Credit	**4**
Teaching per Week	**5 Hrs**
Minimum weeks per Semester	**15 (Including Classwork, examination, preparation, holidays etc.)**
Effective From	**June 2016**
Purpose of Course	The purpose of the course is to make students familiar with Basics of Guidance, Educational and Vocational Guidance, Basics of Counselling and Organization of a Guidance Programme.
Course Objective	• To help student understand concept, need and view point of guidance. • To help student understand principles, and problems of different types of guidance. • To help student understand concept and needs and guidance for the children with special needs. • To help student understand the concept and process of counseling. • To acquaint the student with the aim and principles of guidance programme. • To develop in student an understanding of various procedures of organizing various guidance service.
Course Outcomes	**CO1:** Explain the students the Concept, assumptions and issues and problems of Guidance. **CO2:**Explain students the understanding of types of Guidance and role of the teacher in guidance & agencies of guidance. **CO3:**Explain students To get acquainted with Educational and Vocational Guidance especially its concept, principles,nature and its relation with curriculum, classroom learning and career development. **CO4 :** Explain students to get acquainted with concept , nature and principles of Counselling process, its approaches and characteristics. **CO5 :**Explain students to get familiar with organization of a guidance programme like various types of services & evaluation of guidance programme.

Mapping between COs with PSOs		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
	CO1							
	CO2							
	CO3							
	CO4							
	CO5							

Pre-requisite	Basics of Guidance and Counselling
Course Content	**UNIT – I** **BASICS OF GUIDANCE** 1. Concept, assumptions, issues and problems of guidance 2. Needs, scope and significance of guidance 3. Types of guidance – Educational, vocational and personal, Group guidance 4. Role of the teacher in guidance 5. Agencies of guidance – National, State level **UNIT – II** **EDUCATIONAL AND VOCATIONAL GUIDANCE** 1. Educational Guidance 2. Principles of all guidance 3. Guidance and curriculum, guidance and classroom learning 4. Vocational Guidance 5. Nature of work and Various motives associated with work 6. Vocationalisation of secondary education and career development **UNIT – III** **BASICS OF COUNSELING** 1. Counseling Process 2. Concept, nature, principles of counseling 3. Counseling approaches – directive, non-directive, 4. Group counseling vs. individual counseling, Counseling for adjustment 5. Characteristics of good counseling **UNIT – IV** **ORGANIZATION OF A GUIDANCE PROGRAMME** 1. Principles of ogranisation 2. Various types of services – Counseling 3. Group guidance, individual inventory service and information orientati service, placement service and follow up service 4. Evaluation of guidance programme, Use of tests in guidance and counseling
Reference Books	1. Bernard, H. W. and Fullmer, D. W.(1974). ***Principles of Guidance : A Basic Tex.*** Bombay : Allied Publishing. 2. Burks, H. M. and Saffire, B.(1979). ***Theories of Counselling.*** New York : McGraw-Hill. 3. Gibson, R. L. and Mitchell, M. H. (1981). ***Introduction to Guidance.***

	New York : McMillan. 4. Kochhar, S. K., (1979). ***Guidance in Indian Education.*** New Delhi : Sterling Publishers, Pvt. Ltd. 5. Mahendi, B. (1963). ***Guidance in Schools.*** New Delhi : NCERT. 6. McLeod, J. (1997). ***An Introduction to Counselling.*** Buckinghham : Open university Press. 7. Pasricha, P. (1976). ***Guidance and Counseling in Indian Education.*** New Delhi : NCERT. 8. Patterson, C. H. (1967). ***The Counselor in the Schools.*** New York : McGraw-Hill. 9. Shama, N. R., (1982). ***Education and Vocational Guidance.*** Agara : Vinod Pustak Mandir.
Teaching Methodology	The course would be taught through participatory approaches including Lecture, Classroom interaction, Workshop, Panel Discussion, Library Search ,Seminar, Field work.
Evaluation Methods	30% Internal assessment based on class attendance, participation, practicum, assignment, seminar, internal examination, etc. 70% External based on semester end University examination
Teaching Methodology	The course would be taught through participatory approaches including Lecture, Classroom interaction, Workshop, Panel Discussion, Library Search ,Seminar, Field work.
Evaluation Method	30% Internal assessment based on class attendance, participation, practicum, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course :403 Value Education and Human Rights

Course Code	403
Course Title	**Value Education and Human Rights**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016

Purpose of Course	The purpose of the course is to make students familiar with Values, Human Rights and Moral Education, Moral Development of the Child, Moral learning to Moral Education and Human Rights Education.
Course Objective	To make students acquainted with concepts, methods, postulates, assumptions of philosophy and its applications.
Course Outcomes	• To enable students to understand the need and importance of Value- . Education and education for Human Rights • To enable them to understand the nature of values, moral values, moral education and to differentiate such values form religious education, moral training or moral indoctrination. • To enable them to understand the process of moral development vis-à-vis their cognitive and social development. • To orient the students with various intervention strategies for moral education and conversion of moral learning into moral education. • Understand correlative nature of citizenship Education and its role in various contemporary issues • Identify importance of Human Rights awareness in existing social Scenario.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							

Pre-requisite	Basics of Value Education and Human Rights
Course Content	**UNIT – I** **VALUES, HUMAN RIGHTS AND MORAL EDUCATION** 1. Need and Importance of Value Education and Education for Human Rights in the existing social scenario 2. Valuation of culture: Indian Culture and Human Values. 3. Moral Education vis-à-vis religious education; moral instructions; moral training and moral indoctrination. 4. Language of moral education – its form and context , characteristics of a morally educated persons 5. Justice and Care – the two dimensions perspectives in Morality: Dichotomy between reason and passion **UNIT – II** **MORAL DEVELOPMENT OF THE CHILD** 1. Concept of Development and Concept of Moral development. 2. Psycho-analytic approach 3. Learning theory approach, especially social learning theory approach. 4. Cognitive developmental approach – Piaget and Kohlberg, Stages of

	moral development and their characteristic features. **UNIT – III** **MORAL LEARNING TO MORAL EDUCATION** 1. Moral Learning outside the school – child rearing practices and moral Learning.. 2. Moral learning via Imitation. 3. Nature of Society and moral learning. 4. Media and moral learning. 5. Moral Learning Inside the school : providing "form" and "Content "to education 6. Moral Education and the curriculum : Can moral education be imparted taking it as a subject of curriculum **UNIT – IV** **HUMAN RIGHTS EDUCATION : AN INTRODUCTION** 1. Need and importance of Human rights in existing social scenario. 2. History of Human Rights development. 3. Human Rights Education : Meaning, need and scope.
Reference Books	1. Agrawal , H. O. ***Human Rights.*** Allahabad : Central Law Publication. 2. Begum, S.M. ***Human Rights in India.*** New Delhi : A.P.H. Publishing Corporation. 3. Cummings, K. William. ***The Revival of Value Education in Asia and the West.*** New York : Pergamon Press Inc. 4. Fogelman, K. ***Citizenship in Schools.*** London : David Fulton Publications. 5. Freedomo, S. ***Discriminations & Human Rights.*** New York: Oxford. University Press. 6. Lawsan, E. ***Encyclopaedia of Human Rights.*** USA : Taylor and Francies. 7. Ottaway, A.K.C. ***Education and Society.*** London : Routledge and Kegan Paul Ltd. 8. Sharma, K. Yogendra. ***Sociological Philosophy of Education.*** New Delhi : Kanishka Publication & Distributors.
Teaching Methodology	The course would be taught through participatory approaches including Lecture, Classroom interaction, Debate, Library search , Seminar, Field work.
Evaluation Methods	30% Internal assessment based on class attendance, participation, practicum, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course: 403: 5. PLANNING IN EDUCATION

Course Code	**403**
Course Title	**Planning in Education**

Credit	4
Teaching per Week	**5 Hrs**
Minimum weeks per Semester	**15 (Including Classwork, examination, preparation, holidays etc.)**
Effective From	**June 2016**
Purpose of Course	The purpose of the course is to make students familiar with Foundations of Educational Planning, Principles-Techniques and approaches of Educational Planning And Types of Educational Planning with criticism of Indian Planning Commission.
Course Objective	• Get acquainted with the meaning and objectives of educational planning. • Get acquainted with types of educational planning. • Understand the principles and techniques of educational planning. • Get acquainted with the process of planning and five year plans in India. • Identify the need, scope and purpose of educational planning, • Understand principles and approaches of educational planning. • Develop the skills in planning and using a variety of administrative strategies. • Explain the role and contribution of different agencies educational planning. • Study educational planning system in India with reference to national, state, district and sub-district level structures.
Course Outcomes	**CO1:** Explain the students about the meaning of Planning and educational planning, its objectives and theoretical base of planning **CO2:** Explain students the understanding of guiding principles , methods and techniques & approaches of educational planning, social components of Educational planning. **CO3:** Explain students to get acquainted with types of Educational planning, National/state & institutional educational planning **CO4:** Explain students to get acquainted with knowledge of establishment of planning commission in India & its process. **CO5:**Explain students to get familiar with five year plans of education in India & criticism of Indian Planning Commission .

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							

	CO5							
Pre-requisite	Basics aspects of Planning in Education system							
Course Content	**UNIT – I** **FOUNDATIONS OF EDUCATIONAL PLANNING** 1. Meaning of planning and educational planning 2. Definition of planning and educational planning 3. Objectives of educational planning 4. Theoretical base of planning 5. Importance of educational planning **UNIT – II** **PRINCIPLES, TECHNIQUES AND APPROACHES OFEDUCATIONAL PLANNING** 1. Guiding principles of educational planning 2. Methods and techniques of educational planning. 3. Approaches to educational planning: Social demand approach, Man-power approach, Return of return approach 4. Critical analysis of educational planning in India. **UNIT – III** **TYPES OF EDUCATIONAL PLANNING** 1. Types of Educational planning: concepts of macro, macro and micro level planning. 2. National educational planning 3. Educational planning of state 4. Institutional planning 5. Social components of educational planning. **UNIT – IV** **TYPES OF EDUCATIONAL PLANNING** 1. Establishment of planning commission in India 2. Process of planning in India 3. Five year plans of education in India (Only qualitative development and expansion of education during five- year plans in India) 4. Criticism of Indian Planning Commission							
Reference Books	1. Bell & Bell (2006): *Education, Policy and Social Class*. Routledge. 2. Bottery Mike (ed.) (1992): *Education, Policy & Ethics*. Continuum, London. 3. Chau,Ta-Ngoc(2003):*Demographic Aspects of Educational Planning*. Paris: International Institute for Educational Planning. 4. Griffiths, V. L. (1963). *Educational Planning*. London, O. U. P. 5. Hallack, J. (1977): *Planning the Location of schools: An Instrument of Educational Policy*. Paris: International Institute for Educational Planning. 6. Hough J.R. (1990): *Education, Policy-An International Survey*. Croom Helm, London. 7. Kaufman, Herman, Watters (eds.) (1996): *Educational Planning: Strategic*							

	Tactical Operational, Tecnomic. 8. Naik, J.P. (1965): *Educational Planning in India.* New Delhi: Allied. 9. Naik, J.P. (1982): *The Educational Commission & After.* New Delhi: Allied. 10. Jha, Jyotsna, Saxena, K.B.C. & Baxi, C.V. (2001): *Management Processes in Elementary Education : A Study of Existing Practices in Selected States in India.* New Delhi, the European Commission. 11. Mukhopadadyay, Mamar & Tyagi, R.S. (2005): *Governance of School Education in India.* New Delhi, NIEPA. 12. Psacharopolous, G. (ed.) (1985): *Planning of Education: Where Do We Stand?* Washington, World Bank 13. Ramcharan Padma & R. Vasantha (2005): *Education in India.* New Delhi, National Book Trust. 14. Bhagia, N.M. (1990): *Educational Administration in India and other developing countries.* Commonwealth Publishers, New Delhi 15. Luthens, Fred. (1981), *Organizational Behavior,* Mcgraw Hill, Tokyo. 16. Milton, Charles R. (1989*). Human Behavior in Organizations,* Prentice Hall, Inc, USA. 17. Naik, J.P. (1965): *Educational Planning in India.* New Delhi: Allied. 18. Naik, J.P. (1982): *The Educational Commission & After.* New Delhi: Allied. 19. Roger, Smith (1995): *Successful School Management.* Mcgraw Hill, Tokyo. 20. Naik, J.P. (1965): *Educational Planning in India.* New Delhi: Allied. 21. Naik, J.P. (1982): *The Educational Commission* & After. New Delhi: Allied.
Teaching Methodology	The course would be taught through participatory approaches including Lecture, Symposium, Workshop, Panel, Group discussion; self study, seminar, Case Study Experiments, Problem solving Film Show.
Evaluation Methods	30% Internal assessment based on class attendance, participation, practicum, assignment, seminar, internal examination, etc. 70% External based on semester end University examination

Course 404: TE-FE INTERNSHIP- Related to Specialization

Course Code	404
Course Title	**INTERNSHIP-Related to Specialization**
Credit	Practicum credit 4

Teaching per Week	Students do internship in B.Ed. colleges for 4 weeks
Minimum weeks per Semester	4 weeks
Effective From	June 2016
Purpose of Course	The purpose of the course is to develop academic, administrative and professional skill development as a teacher educator through real-world practices.
Course Objective	To learn and develop practical skills of teaching profession, to develop understanding of inner working of an organization, develop skills to solve immediate problems of the profession; and observe and learn ethics at work.
Course Outcomes	**CO1** Understand and practice administrative activities of teacher education institutions. **CO2** Learn the ways of maintaining records. **CO3** Learn and develop the process of curriculum designing and development. **CO4** Understand training processes and evaluation in teacher education institutes. **CO5** Observe, analyze and reflect on the work and practices of teacher education institutes. **CO6** Observe and practice innovative teaching practices and evaluation practices in teacher education institutes. **CO7** Develop ethics to work in teacher education institutes and develop skills and values of a good teacher educator.
Mapping between COs with PSOs	
Pre-requisite	Basic concepts of Education and Internship, Knowledge of ET and ICT, Bloom Taxonomy and Lesson Planning, Knowledge of TLM
Course Content	M.Ed. students will have to perform following activities during field internship: 1. Observe the lessons of teacher educators of teacher training institutes 2. Observe and assess composite lessons given by M.Ed. students 3. Planning and practice of composite lessons 4. Participation of M.Ed. students in teaching and administrative activities of the institution 5. Maintenance of logbook 6. Maintenance of Attendance Registers 7. Study and learn Record Keeping 8. Academic Guidance and counselling to the students 9. Organising co-curricular and cultural activities 10. Learn and practice evaluation procedures

	PSO1	PSO2	PSO3	PSO4	PSO5	PS06	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							
CO6							
CO7							

	11. Visiting infrastructure and facilities of teacher training institutes and its working 12. Maintaining reflective report
Reference Books	*1.* Sharma S.R. (2008). A Handbook of Teacher Education. Meerut: Loyal Book Depot. *2.* National Curriculum Framework for Teacher Education (2009). New Delhi: National Council for Teacher Education. *3.* https://www.academia.edu *4.* https.//ncte.gov.in *5.* https://ncert.nic.in
Teaching Methodology	Observation, Participatory Observation, Supervision, Discussion, Self-study, Field Work, Reflection
Evaluation Method	100% External evaluation done by mentor appointed by university

Course: 405: DISSERTATION GUIDANCE, SUBMISSION AND VIVA-VOCE

Course Code	405
Course Title	**DISSERTATION GUIDANCE, SUBMISSION AND VIVA-VOCE**
Credit	4
Teaching per Week	5 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, preparation, holidays etc.)
Effective From	June 2016
Purpose of Course	The purpose of the course is to make students capable for identifying his/her own area of interest ; able to explore a subject in depth; manage a research work; define a suitable questions and use and describe the appropriate research tools to test the real situation in discipline of Education and society.
Course Objective	• To develop knowledge and understanding of the Educational Research and its process. • To understand the importance of Research skills like reading, reviewing, writing and expressing to justify his/her research work. • To develop the habit of self-preparing Research tools and chapters of dissertation. • To get acquainted with the role of Research in Education. • To get acquainted with the Digital supporting research Medias in Education.
Course Outcomes	**CO1:** Explain the students how to Articulating and formatting a research problem and research questions . **CO2 :** Explain students the understanding the importance of Designing a research plan

	CO3: Explain students To get acquainted with how Executing the plan **CO4 :** Explain students to get aware with analysing and writing the findings in academic fashion. **CO5:**Explain students to get familiar about the Presenting the Research Report and Defending Viva-voce.

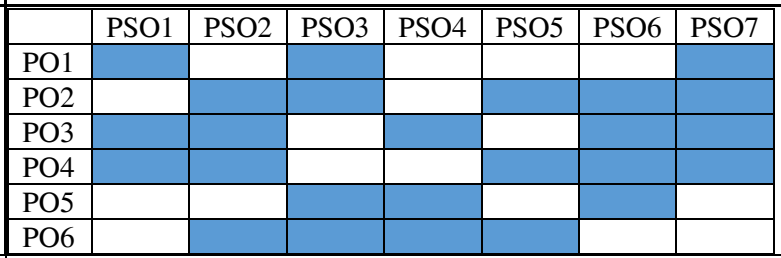
Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							

Pre-requisite	Basics of Educational- Research aspects like research problem, review of past researches, tool construction, Data collection and data analysis , interpretation of data & representation of chapters in dissertation form.
Course Content	**Preparation of Chapter-5 :** • Summary of Research, Findings of Research, Educational Implications and Suggestions for further Researches. • **Preparation of Summary Report** • of Research in form of Dissertation & its submission. • **Preparation of Viva-voce**
Reference Books	1 Ary, Donald and Jacob (1976): *Introduction of Statistics, Purpose and Procedures*, New York, Holt Rinehart and Winston. 2 American Psychological Association. (2009): *Publication Manual of the American Psychological Association* (6th ed.). Washington, DC:Author 3 Babbie, E. R. (2007). *The Basics of Social research* (4th ed.). Australia:Thomson/Wadsworth. 4 Best, J.W. and Kahn, J.V (1998). *Research in Education*. New Delhi :Prentice of India, Pvt, Ltd. 5 Bordens, K. S., & Abbott, B. B. (1991): *Research designs and methods: A process approach* (2nd ed.). Mountain View, CA: Mayfield. 6 Berg, Bruce L. (2008.) *Qualitative research methods for the social sciences.*7th ed. Boston, MA: Allyn& Bacon. 7 Christensen, L. (2007). *Experimental Methodology*. Boston: Allyn & Bacon.

	8 Clive Opie (2004). *Doing' Educational Research- A Guide for First timeresearchers*. New Delhi: Vistar Publications. 9 Cononver, W.J. (1971). Practical Non-Parametric Statistics. New York: John Wiley & Sons Inc. 10 Corey, Stephen M. (1953). *Action research to improve school practices*.York: Bureau of Publications, Teachers College, ColumbiaUniversity.
Teaching Methodology	To be carried out under close mentorship/guidance of a Faculty member .Daily regular guidance cum tutorial period is arranged in time-table.
Evaluation Methods	External Assessment (100 Marks – 70 Marks Dissertation assessment by external referees and 30 Marks Viva Voce)

Master of Science in Mathematics

Name of Program	**Master of Science in Mathematics**
Abbreviation	**M.Sc. Mathematics**
Duration	2 Years
Eligibility Criteria	Bachelor Degree in Mathematics or equivalent degree
Objective of Program	The core objective of the M.Sc. Mathematics programme is to prepare the students for productive career in education sector and academia by providing an outstanding environment of teaching and research in the core and emerging areas of the discipline.
Program Outcomes	1. Knowledge of fundamentals in pure and applied Mathematics is imparted. 2. Information about several applications of Mathematics is imparted to the students which will create the opportunities in education, research and industries. 3. Strong foundation of Mathematics will be laid to formulate, analyse and problem solving for advanced study and research. 4. Relevant knowledge and skills will be acquired by the students which are needed for the professional activities which demonstrate highest standards of ethical issues in mathematical sciences. 5. Need-based Mathematics teaching-learning resources will be developed. 6. Students will be more professionally inclined Mathematics educators with sound knowledge of subject matter and specialized in constructive & alternate pedagogy.
Program Specific Outcomes	1. Students will be able to understand the fundamental principles of pure and applied Mathematics. 2. Confidence of students will increase in mathematical logic and reasoning ability. 3. Explore a newer way of mathematical applications. 4. The analytical and theoretical skills applicability ability of students will increase. 5. Computing skills for mathematical problem solving will be enhanced. 6. Students will be motivated more for research in Mathematics and related fields. 7. Students will be inclined towards the preparation of competitive exams like NET, GATE etc.
Mapping between POs and PSOs	
Medium of Instruction	English

Program Structure: Semester 1								
Course Code	**Title**	**Teaching per week**		**Course Credits**	**University Examination**		**Internal Marks**	**Total Marks**
		Theory	**Practical**		**Duration**	**Marks**		
PGMTH-101	Real Analysis-1	4	0	4	3 Hrs	70	30	100
PGMTH-102	Complex Analysis-1	4	0	4	3 Hrs	70	30	100
PGMTH-103	Topology-1	4	0	4	3 Hrs	70	30	100
PGMTH-104	Abstract Algebra-1	4	0	4	3 Hrs	70	30	100
PGMTH-105	Ordinary Differential equations-1	4	0	4	3 Hrs	70	30	100
PGMTH-106	Numerical Anlysis-1	4	0	4	3 Hrs	70	30	100
	Total	24	0	24				

Program Structure: Semester 2								
Course Code	**Title**	**Teaching per week**		**Course Credits**	**University Examination**		**Internal Marks**	**Total Marks**
		Theory	**Practical**		**Duration**	**Marks**		
PGMTH-201	Real Analysis-2	4	0	4	3 Hrs	70	30	100
PGMTH-202	Complex Analysis-2	4	0	4	3 Hrs	70	30	100
PGMTH-203	Topology -2	4	0	4	3 Hrs	70	30	100
PGMTH-204	Abstract Algebra-2	4	0	4	3 Hrs	70	30	100
PGMTH-205	ODE-2	4	0	4	3 Hrs	70	30	100
PGMTH-206	Numerical Analyis-2	4	0	4	3 Hrs	70	30	100
	Total	24	0	24				

Program Structure: Semester 3

Course Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
PGMTH-301	Functional Analysis-I	4	0	4	3 Hrs	70	30	100
PGMTH-302	Differential Equations	4	0	4	3 Hrs	70	30	100
PGMTH-303	Calculus of Variations	4	0	4	3 Hrs	70	30	100
PGMTH-304	Advanced Linear Algebra-I	4	0	4	3 Hrs	70	30	100
	ELECTIVE GROUPS (2 courses)							
PGMTH-3001	Fluid Dynamics	4	0	4	3 Hrs	70	30	100
PGMTH-3002	Mathematical Software	4	4	4	3 Hrs	70	30	100 **
PGMTH-3003	Linear programming	4	4	4	3 Hrs	70	30	100 **
PGMTH-3004	Operation Research	4	4	4	3 Hrs	70	30	100 **
PGMTH-3005	Integral Transforms-I	4	0	4	3 Hrs	70	30	100
PGMTH-3006	Advanced Integral Transforms-I	4	0	4	3 Hrs	70	30	100
PGMTH-3007	Advanced Number Theory-I	4	0	4	3 Hrs	70	30	100
PGMTH-3008	Analytic Number Theory	4	0	4	3 Hrs	70	30	100
PGMTH-3009	Special Functions-I	4	0	4	3 Hrs	70	30	100
PGMTH-3010	Advanced Special Functions-I	4	0	4	3 Hrs	70	30	100
	Total	24	0 / 12	24				

** Theory: 18 (Internal) & 42 (External)
** Practical: 12 (Internal) & 28 (External)
** Total: 30 (Internal) & 70 (External)

Program Structure : Semester 4								
Course Code	**Title**	**Teaching per week**		**Course Credits**	**University Examination**		**Internal Marks**	**Total Marks**
		Theory	**Practical**		**Duration**	**Marks**		
PGMTH-401	Functional Analysis-II	4	0	4	3 Hrs	70	30	100
PGMTH-402	Differential Geometry	4	0	4	3 Hrs	70	30	100
PGMTH-403	Integral Equations	4	0	4	3 Hrs	70	30	100
PGMTH-404	Advanced Linear Algebra-II	4	0	4	3 Hrs	70	30	100
	ELECTIVE GROUPS (2 courses)							
PGMTH-4001	Computational Fluid Dynamics	4	4	4	3 Hrs	70	30	100**
PGMTH-4002	Mathematical Modelling	4	0	4	3 Hrs	70	30	100
PGMTH-4003	Non-Linear programming	4	4	4	3 Hrs	70	30	100 **
PGMTH-4004	Advanced Operation Research	4	4	4	3 Hrs	70	30	100 **
PGMTH-4005	Integral Transforms-II	4	0	4	3 Hrs	70	30	100
PGMTH-4006	Advanced Integral Transforms-II	4	0	4	3 Hrs	70	30	100
PGMTH-4007	Advanced Number Theory-II	4	0	4	3 Hrs	70	30	100
PGMTH-4008	Introduction to Partition Theory and Cryptography	4	0	4	3 Hrs	70	30	100
PGMTH-4009	Special Functions-II	4	0	4	3 Hrs	70	30	100
PGMTH-4010	Advanced Special Functions-II	4	0	4	3 Hrs	70	30	100
	Total	24	0 / 12	24				

** Theory: 18 (Internal) & 42 (External)
** Practical: 12 (Internal) & 28 (External)
** Total: 30 (Internal) & 70 (External)

M.Sc. Semester – I

<table>
<tr><td>Course Code</td><td>PGMTH-101</td></tr>
<tr><td>Course Title</td><td>Real Analysis – I</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>20 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Objectives</td><td>The course objective is to develop problem solving skills and to acquire knowledge on some of the basic concepts like convergence of series and function, Uniform convergence and continuity, open and closed sets, Outer measure, measurable sets and Lebesgue measure.</td></tr>
<tr><td>Course Outcomes</td><td>1. To develop an in-depth mathematical understanding of the theory of real analysis and students will be able to give rigorous proofs of several theorems of real analysis.
2. Students will be able to use these theorems to solve problems.
3. Ability to handle convergence of series and sequence of functions.
4. Ability to differentiate functions in R^n</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><th></th><th>PSO 1</th><th>PSO 2</th><th>PSO 3</th><th>PSO 4</th><th>PSO 5</th><th>PSO 6</th><th>PSO 7</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Course content</td><td><u>Unit-I</u>:
Sequences and Series of Functions:
Sequence of functions, series of functions, uniform convergence, uniform convergence and continuity, uniform convergence and integration, uniform convergence and differentiation, equicontinuous families of Functions, the Stone-Weierstrass theorem.

<u>Unit-II</u>:
Pre-requisite:
The extended real numbers, open and closed sets of real numbers, Borel sets.

<u>Unit-III</u>:
Lebsgue Measure – 1:
Outer measure, measurable sets and Lebesgue measure.

<u>Unit-IV</u>:
Lebesgue Measure – 2:
Non-measurable sets, measurable function, Littlewoods's three principles.</td></tr>
<tr><td>References</td><td>1. H. L. Royden: "Real Analysis", Macmillan publication, 1993.
2. G. de Barra: "Measure theory and Integration", Wiley Eastern limited, 1981.</td></tr>
</table>

<table>
<tr><td></td><td>3. Walter Rudin: “Principles of Mathematical Analysis”, McGraw Hill, 1976.
4. T. M. Apostol: “Mathematical Analysis”, Narosa Publishing House, 1985.
5. I. P. Natanson: “Theory of Functions of real variable”, Fredrick Unger pub. 1961.</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Course Code</td><td>PGMTH-102</td></tr>
<tr><td>Course Title</td><td>Complex Analysis – I</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>20 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Objectives</td><td>The objective of this course is to introduce and develop the fundamental concepts of complex analysis such as analytic functions, Cauchy-Riemann relations and harmonic functions etc.; to study Cauchy integral formula, general form of Cauchy theorem, the Fundamental theorem of Algebra, maximum module principle; to enable students to acquire skills of contour integration to evaluate definite integrals involving sines and cosines via residue calculus.</td></tr>
<tr><td>Course Outcomes</td><td>1. In this course students will learn the algebra and geometry of complex numbers.
2. Students will be able to check differentiability and the analyticity of complex valued function.
3. Student learns about Cauchy-Riemann relations and harmonic functions.
4. Student learns about Cauchy integral formula, general form of Cauchy theorem.
5. Understand the concepts of Fundamental theorem of Algebra, Maximum module Principle.
6. Understand Contour integrals related theorem and Examples.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><th></th><th>PSO 1</th><th>PSO 2</th><th>PSO 3</th><th>PSO 4</th><th>PSO 5</th><th>PSO 6</th><th>PSO 7</th></tr>
<tr><td>CO1</td><td>■</td><td></td><td></td><td></td><td></td><td></td><td>■</td></tr>
<tr><td>CO2</td><td></td><td>■</td><td>■</td><td></td><td></td><td></td><td>■</td></tr>
<tr><td>CO3</td><td>■</td><td></td><td></td><td>■</td><td></td><td>■</td><td></td></tr>
<tr><td>CO4</td><td></td><td>■</td><td></td><td>■</td><td></td><td>■</td><td></td></tr>
<tr><td>CO5</td><td>■</td><td></td><td>■</td><td>■</td><td></td><td></td><td>■</td></tr>
<tr><td>CO6</td><td></td><td>■</td><td></td><td></td><td>■</td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Course content</td><td><u>Unit-I</u>:
Algebra of Complex Numbers:
Complex numbers, triangle inequality and its applications, polar and exponential forms, powers and roots, region in the complex plane, extended complex plane.

<u>Unit-II</u>:
Analytic Functions:
Functions of a complex variables, limits, continuity, differentiability, Cauchy-Riemann equations, analytic functions, Harmonic functions.</td></tr>
</table>

	Unit-III: Elementary Functions: Exponential function, trigonometric functions, hyperbolic functions, multivalued function and its branches, logarithmic function, complex exponents, inverse trigonometric and hyperbolic functions. Unit-IV: Complex Integration: Contour integral, primitives, Cauchy-Goursat theorem, extension of Cauchy-Goursat theorem, winding number, Cauchy integral formula, consequences of Cauchy integral formula, concept of maximum moduli of functions.
References	1. H. S. Kasana: "Complex Variables – Theory and Applications", 2nd Edition (2006), PHI, N. Delhi. 2. J. N. Sharma: "Functions of a Complex Variable", Krishna Prakashan, 2000. 3. S. Ponnuswamy: "Foundation of Complex Analysis", Narosa Publishing House, 1997. 4. S. Lang: "Complex Analysis", Addition Wesley, 1997. 5. H. A. Priestly: "Introduction to Complex Analysis", Clarendon Press, 1990. 6. J. B. Conway: "Functions of one Complex Variable", Springer-Verlag, 1980

Course Code	**PGMTH-103**
Course Title	**Topology – I**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	To generalize the concept of distance, open sets, closed sets and related theorems in real line and to learn basic concepts in metric spaces, derived set, open base, countable spaces, separable spaces. cover, sub-cover, open cover, basic and sub-basic open cover. topological spaces, compact spaces and connected spaces.
Course Outcomes	1. Students will be able to define topology and its construction. 2. Students will be able to distinguish open and closed subset, Notions of connectedness and compactness. 3. Students learns about various properties of compact spaces 4. Students will be able to distinguish Cover, Sub-cover, open cover, Basic and sub-basic open cover 5. Students will be able to distinguish between Topological Spaces, compact spaces and connected spaces.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	■						
CO2	■	■	■				
CO3	■			■			■
CO4	■			■		■	■
CO5	■		■	■			■

Course content	Unit-I: Metric Spaces and Topological Spaces: Sets and functions, metric Spaces: Definitions and examples. Topological space, relative topology, continuity and convergence, open and closed sets, closure of a set, neighbourhood of a point, interior point, limit point, derived set, open base and open sub-base, first and second countable spaces, separable spaces. Unit-II: Compactness: Cover, sub-cover, open cover, basic and sub-basic open cover, countable open cover, continuity and compactness, finite intersection property, Heine-Borel property. Unit-III: Product Spaces: Definition and examples, projection mappings and its continuity, Open and closed sub-base for product space. Tychonoff's Theorem and locally compact spaces: Tychonoff's theorem, generalized Heine-Borel theorem. Unit-IV: Compactness for Metric Spaces: Sequentially compact metric space, Bolzano-Weierstrass property (BWP),totally bounded space, Ascoli's theorem.
References	1. George F. Simmons: "Introduction to Topology and Modern Analysis", McGraw-Hill Book Co., 1963. 2. James R. Munkres: "Topology : A First Course", Prentice Hall of India Pvt. Ltd., New Delhi, 2000. 3. J. Dugundji: "Topology",Allyn and Bacon, 1966 (Reprinted in India by Prentice Hall of India Pvt. Ltd.). 4. K. D. Joshi: "Introduction to General Topology", Wiley Eastern Ltd., 1983. 5. J. Hocking and G. Young: "Topology", Addison-Wesley, Reading, 1961.

Course Code	**PGMTH-104**
Course Title	**Abstract Algebra – I**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	To introduce the concepts of Groups, Permutation groups, Direct product of groups, Rings, Euclidean Rings, Polynomial Rings and some related theories; to develop working knowledge of these concepts and also skills for applying them in number theory and construction of certain fields.
Course Outcomes	1. Acquaintance with the fundamental algebraic structures, namely groups, rings, fields and vector spaces. 2. Students learns about group theory, ring theory and modules. 3. Students will be able to apply the conceptual structure of group theory

	4. Students will be able to distinguish between group and ring 5. Students will be able to distinguish between fields, vector space, modules 6. Students will gain skill in problem solving and critical thinking. 7. Essential for further study of algebra.
Mapping between COs with PSOs	

	PSO1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	■	■	■	■			■
CO2	■		■	■		■	
CO3		■					■
CO4	■			■			
CO5	■	■		■			■
CO6		■					■
CO7						■	

Course content	Unit I: Group Theory: Conjugate of an element, class equation, and Cauchy theorem, Sylow's theorem, Direct Products, Fundamental theorem of Finite Abelian Groups. Unit II: Ring Theory: Primitive polynomials, Gauss's lemma, the Eisenstein criterion, polynomial rings over commutative rings, unique factorization domain. Unit III: Modules: Modules, sub-modules, finitely generated module. direct sum of sub-modules, homomorphism and quotient modules, fundamental theorem of R-homomorphism. Unit IV: Completely reducible modules, Schur's lemma, Free modules.
References	1. I. N. Herstein: Topics in Algebra 4thEd., John Wiley Sons. 2. P. B. Bhattacharya: Basic Abstract Algebra 2ndEd., Cambridge University Press. 3. Artin M.: Algebra, Prentice Hall, Englewood, Cliffs NJ. 4. J. A. Gallian: Contemporary Abstract Algebra, Narosa Pub. House
Course Code	**PGMTH-105**
Course Title	**Ordinary Differential Equations – I**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	To provide some standard methods for solving first-order, second-

<table>
<tr><td></td><td>order and higher-order homogeneous and non-homogeneous ordinary differential equations with constant and variable coefficients, linear equation with regular singular points, and to study the method of successive approximations, Lipshitz condition and non-local existence of solutions, wronskian.</td></tr>
<tr><td>Course Outcomes</td><td>1. Students learns about differential equations and its classifications.
2. Students will be able to classify nature of solutions for the second order linear differential equation, existence of solutions of differential equations.
3. Students learns the methodology to solve second order ordinary differential equations.
4. Students will understand the concept of method of variation of parameters.
5. Students will be able to use the method of Laplace transforms.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><th></th><th>PSO1</th><th>PSO2</th><th>PSO3</th><th>PSO4</th><th>PSO5</th><th>PSO6</th><th>PSO7</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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</td></tr>
<tr><td>Course content</td><td><u>Unit-I</u>:
Basic concepts and Linear Equations of the first order:
Introduction, formation of differential equations (DE), classification of DE, initial and boundary value problems, definition of solutions of DE, first order linear equations, exact equations, separable equations.

<u>Unit-II</u>:
Linear Differential Equations of Higher Order:
Introduction: Higher order differential equations, linear independence, equations with constant coefficients, equations with variable coefficients .

<u>Unit-III</u>:
Wronskian, variation of parameters, some standard methods, method of Laplace transforms.

<u>Unit-IV</u>:
Solutions in power series:
Introduction, second order linear equations with ordinary points, Legendre equation and Legendre polynomials, second order equation with regular singular point, properties of Bessel functions.</td></tr>
<tr><td>References</td><td>1. S. G. Deo, V. Lakshmikantham, V. Raghvendra: Text Book of Ordinary Differential Equations (Second Edition),Tata McGraw Hill Pub. Co. Ltd, New Delhi, 1997.
2. Coddington E. A., Levinson N.: Theory of Ordinary Differential Equations, Mc Graw Hill, 1955.
3. Hartmann P.: Ordinary Differential quations, John Wiley International, 1964.
4. Somasundaram D.: Ordinary Differential Equations, Narosa, 2001.</td></tr>
</table>

5. Mandal C. R.: Ordinary Differential Equations, PHI, 2003.
6. Rai B., Freedmanm H. I., Chaudhary D. P.: A Course in Ordinary Differential Equations, Narosa, 2002.
7. King A. C., Otto R., Billingham J.: Differential Equations, Cambridge, 2005.

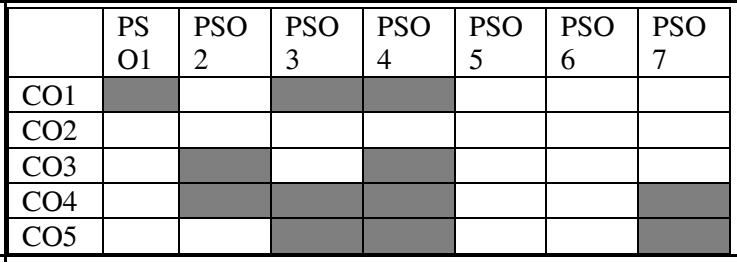
Course Code	**PGMTH-106**
Course Title	**Numerical Analysis – I**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	To expose the student to the various numerical methods available for different kinds of problems. The study of numerical methods for Interpolation of polynomials and Approximation roots of functions. Wide variety of numerical techniques to solve mathematical problems arising in diverse scientific contexts. Implementation of stable algorithms for finding roots of nonlinear equations, solving linear system of equations, and solution for ODE.
Course Outcome	1. Students will be able to find roots of equations/nonlinear equations. 2. Students will be able to learn about the concepts of Eigen values and Eigen vectors. 3. Students will be able to learn about theory of interpolations. 4. Students will be able to learn about various interpolation method. 5. Students will be able to implement algorithms of numerical methods.
Mapping between COs with PSOs	

	PSO1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	■						
CO2	■			■	■		■
CO3	■	■					■
CO4	■						■
CO5		■	■		■		

Course content	Unit-I: Transcendental Equations: Bisection method, iteration method based on first and second degree equation, rate of convergence, general iteration methods, system of nonlinear equations, methods for complex roots. Unit-II: Polynomial equations & system of linear algebraic equations: Polynomial equations, choice of iterative method. direct Methods, error analysis for direct root methods, iteration methods. Unit-III: Eigen values problems: Eigen values and eigenvectors, bound on eigen values, Jacobi method for symmetric matrices, givens method for arbitrary matrices, power method, inverse power method.

	Unit-IV: Interpolation: Lagrangian and Newton interpolations, finite difference operators, interpolating polynomials, Hermite interpolation, piecewise and spline interpolations.
References	1. M. K. Jain, S. R. K. Iyenger, R. K. Jain: "Numerical Methods for scientific and engineering computations", VI – edition, New Age International Publishers 2. Philips and Taylor: "Theory and Applications of Numerical Analysis Academic Press", 1996 3. Gourdin and Boumhart: "Applied Numerical Analysis", P.H.I., 1996 4. A.S. Householder: "Theory of Matrices in Numerical Analysis", Blarsedell - New York. 5. Jacques and Colin: "Numerical Analysis", Chapman & Hall, New-York, 1987.

M.Sc. Semester – II

Course Code	**PGMTH-201**
Course Title	**Real Analysis – II**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	The course objective is to develop problem solving skills and to acquire knowledge on some of the basic concepts in the Riemann integral, the Lebesgue integral, various convergence theorem, Functions of a bounded variation.
Course Outcomes	1. Summarize concepts of real analysis to enhance ability of analysing mathematical problems. 2. Students will be able to give rigorous proofs of many theorems of convergence theorem related to Lebesgue integral. 3. Students will be able to use these theorems to solve problems. 4. Students will be able to appreciate the beauty of Lebesgue Integration theory. 5. Students will be able to appreciate the beauty of LP Spaces, the Minkowski and Holder inequalities.
Mapping between COs with PSOs	
Course content	Unit-I: Lebesgue Integral – 1: The Riemann integral, the Lebesgue integral of a bounded function over a set of finite measure, the integral of a non-negative function.

	Unit-II: Lebesgue Integral – 2: The general Lebesgue integral, Lebesgue convergence theorem, monotone convergence theorem, Fatau's lemma, generalized Lebesgue convergence theorem. Unit-III: Differentiation and integration: Differentiation of monotone functions, functions of a bounded variation, differentiation of an integral, absolute continuity, convex functions. Unit-IV: Inequalities in LP Spaces: LP Spaces, the Minkowski and Holder inequalities.
References	1. H. L. Royden: "Real Analysis", Macmillan publication, 1993. 2. G. de Barra: "Measure theory and Integration", Wiley Eastern limited 1981. 3. Walter Rudin: "Principles of Mathematical Analysis", McGraw Hill, 1976. 4. T. M. Apostol: "Mathematical Analysis", Narosa Publishing House, 1985. 5. I. P. Natanson: "Theory of Functions of real variable", Fredrick Unger pub. 1961.

Course Code	**PGMTH-202**
Course Title	**Complex Analysis – II**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	To introduce and develop the fundamental concepts of complex analysis such as analytic functions, Cauchy-Riemann relations and harmonic functions etc., to study classification of singularities, residues, to enable students to acquire skills of contour integration, to evaluate definite integrals involving sines and cosines via residue calculus, conformal mapping.
Course Outcome	1. Students learns about properties of power series 2. Students will be able to find and classify singularities 3. Students will be able evaluate residues and improper real integrals, identify zeros and singular points of functions. 4. Students learns about binomial transformations, exponential transformation, and trigonometric transformation. 5. Upon completion of this course, the student will be able to evaluate complex integrals by applying Cauchy integral formula and various method.
Mapping between COs with PSOs	

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	■						■
CO2		■	■				■
CO3	■			■		■	

	CO4 ▪ ▪ ▪ ▪ ▪ ▪ ▪ CO5 ▪ ▪ ▪ ▪ ▪ ▪ ▪
Course content	Unit-I: Series Expansions: Sequence of functions, series of functions, power series, uniform convergence of power series, Taylor series, zeros of analytic functions, Laurent series, integration and differentiation of power series, multiplication and division of power series. Unit-II: Singularities and Residues: Classification of singularities, residues, poles and zeros, behaviour of functions and infinity, meromorphic functions, open mapping theorem, partial fraction expansions, regular points and singularities. Unit-III: Sums and Definite Integrals: Estimation of sums, definite integrals involving sines and cosines, improper integrals, integration along indented contours, other types of contours. Unit-IV: Conformal Mappings: Conformality theorem, bilinear transformation, special bilinear transformations, exponential transformation, trigonometric transformation.
References	1. H. S. Kasana: "Complex Variables – Theory and Applications", 2nd Edition (2006), PHI, N. Delhi. 2. J. N. Sharma: "Functions of a Complex Variable", Krishna Prakashan, 2000 3. S. Ponnuswamy: "Foundation of Complex Analysis", Narosa Publishing House, 1997. 4. S. Lang: "Complex Analysis", Addition Wesley, 1997. 5. H. A. Priestly: "Introduction to Complex Analysis", Clarendon Press, 1990 6. J. B. Conway: "Functions of one Complex Variable", Springer-Verlag, 1980

Course Code	**PGMTH-203**
Course Title	**Topology – II**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	To generalize the concept of separation axioms and related theorems in real line and to learn basic concepts in compact spaces and connected spaces, component of space, totally Disconnected space, locally disconnected space.
Course Outcomes	1. Students will be able to understand separation axioms. 2. Students will know about connected spaces and its properties 3. Students will have a grasp on basic results related to

<table>
<tr><td></td><td>connectedness.
4. Student will be able to distinguish and learn about component of space, totally disconnected space, locally connected space.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><th></th><th>PSO 1</th><th>PSO 2</th><th>PSO 3</th><th>PSO 4</th><th>PSO 5</th><th>PSO 6</th><th>PSO 7</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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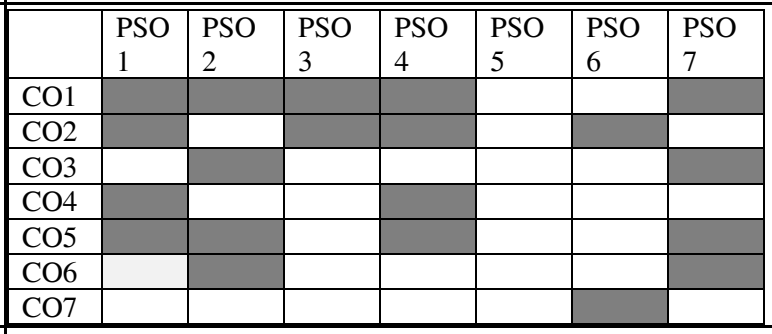
</td></tr>
<tr><td>Course content</td><td>Unit-I:
Separation Axioms:
T_1 and T_2 spaces, regular, completely regular and normal spaces, Uryshon's lemma and Tietz's extension theorem.

Unit-II:
Connected Spaces:
Connected space, continuity and connectedness, disconnected spaces, product of connected spaces, connectedness of R^n and C^n.

Unit-III:
Component of space:
Component of space, theorems and examples on component spaces.

Unit-IV:
Totally Disconnected Space:
Definition and examples, theorems and examples on totally disconnected spaces
Locally Connected space:
Definition and examples, theorems related to locally connected spaces.</td></tr>
<tr><td>References</td><td>1. George F. Simmons: "Introduction to Topology and Modern Analysis", McGraw-Hill Book Co., 1963.
2. James R. Munkres: "Topology : A First Course", Prentice Hall of India Pvt. Ltd., New Delhi, 2000.
3. J. Dugundji: "Topology", Allyn and Bacon, 1966 (Reprinted in India by Prentice Hall of India Pvt. Ltd.).
4. K. D. Joshi: "Introduction to General Topology", Wiley Eastern Ltd., 1983.
5. J. Hocking and G. Young: "Topology", Addison-Wesley, Reading, 1961.</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Course Code</td><td>PGMTH-204</td></tr>
<tr><td>Course Title</td><td>Abstract Algebra – II</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>20 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Objective</td><td>To develop skills and to acquire knowledge on some of the basic concepts in Galois theory, Algebraic Extensions, Splitting fields, Polynomials solvable by radicals; to visualize and appreciate the necessity of acquiring deep mathematical thought to be able to</td></tr>
</table>

<table>
<tr><td></td><td>solve certain seemingly simple questions.</td></tr>
<tr><td>Course Outcomes</td><td>1. Summarize concepts of field theory to enhance ability of analysing mathematical problems.
2. Students will be able to play around fields and field extensions.
3. Students will also be able to appreciate role of algebra in solving some old classical problems of algebra.
4. Students will be able to distinguish between extension fields, finite extension field and splitting fields.
5. Students will be able to distinguish between algebraic extension and algebraic number.
6. Students will be able to demonstrate field extensions and characterization of finite normal extensions as splitting fields and study prime fields.
7. Students will be able to understand cyclotomic polynomials, cyclic extensions, radical field extensions and ruler & compass constructions; and know the important applications of Galois Theory.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td> 
</td></tr>
<tr><td>Course content</td><td><u>Unit-I</u>:
Field Theory:
Extension fields, finite extension field, algebraic extension, algebraic number.

<u>Unit-II</u>:
Roots of polynomials, splitting fields, uniqueness of splitting fields, construction with straightedge and compass,

<u>Unit-III</u>:
More about roots, Simple extension.
Galois Theory:
Fixed fields, Elementary symmetric functions, normal extension,

<u>Unit-IV</u>:
Galois group, the fundamental theorem of Galois theory.
Solvability by Radicals & Finite Fields:
Solvable Groups, Abel’s Theorem, Finite Fields.</td></tr>
<tr><td>References</td><td>1. I. N. Herstein: Topics in Algebra 4th Ed., John Wiley Sons.
2. P. B. Bhattacharya: Basic Abstract Algebra 2nd Ed., Cambridge University Press.
3. Artin M.: Algebra, Prentice Hall, Englewood, Cliffs NJ.
4. J. A. Gallian: Contemporary Abstract Algebra, Narosa Publishing House.</td></tr>
</table>

<table>
<tr><td>Course Code</td><td>PGMTH-205</td></tr>
<tr><td>Course Title</td><td>Ordinary Differential Equations – II</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>20 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Objectives</td><td>To introduce the concept of system of linear differential equations, linear systems with constant coefficients and periodic coefficients, solution of linear system.</td></tr>
<tr><td>Course Outcomes</td><td>1. Students will be able to identify the essential characteristics of systems of first order linear differential equations
2. Students will know about the existence and uniqueness of solutions.
3. Students will be able to solve system of linear differential equations.
4. Students will be able to understand the concept of fundamental matrix.
5. Students will know about approximate method.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><th></th><th>PSO 1</th><th>PSO 2</th><th>PSO 3</th><th>PSO 4</th><th>PSO 5</th><th>PSO 6</th><th>PSO 7</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>CO5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>Course content</td><td><u>Unit-I</u>:
Systems of linear differential equations:
Introduction, systems of first order equations, model for arms competition between two nations, existence and uniqueness theorem

<u>Unit-II</u>:
Fundamental matrix, non-homogeneous linear systems

<u>Unit-III</u>:
Linear systems with constant coefficients, linear systems with periodic coefficients

<u>Unit-IV</u>:
Existence and uniqueness of solutions:
Introduction, preliminaries, successive approximations, Picard’s theorem</td></tr>
<tr><td>References</td><td>1. S. G. Deo, V. Lakshmikantham, V. Raghvendra: Text Book of Ordinary Differential Equations (Second Edition),Tata McGraw Hill Pub. Co. Ltd, New Delhi, 1997.
2. Coddington E.A., Levinson N.: Theory of Ordinary Differential Equations, Mc Graw Hill, 1955.
3. Hartmann P.: Ordinary Differential Equations, John Wiley International, 1964.
4. Somasundaram D.: Ordinary Differential Equations, Narosa, 2001.
5. Mandal C.R.: Ordinary Differential Equations, PHI,2003.</td></tr>
</table>

6. Rai B., Freedmanm H.I., Chaudhary D.P.: A Course in Ordinary Differential Equations, Narosa, 2002.
7. King A.C., Otto R., Billingham J.: Differential Equations, Cambridge, 2005.

Course Code	**PGMTH-206**
Course Title	**Numerical Analysis – II**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	To impart the knowledge about the various numerical methods used for numerical integration and differentiation and also for initial value problems and boundary value problems; to develop appreciation of the applicability of numerical methods; to increase computational ability.
Course Outcomes	1. Students will be able to perform numerical differentiations and integrations 2. Students will be able to apply single step methods, multistep methods with stability analysis. 3. Students will be able to apply various numerical methods available for different kinds of initial value and boundary problems. 4. Students will be able to use suitable numerical methods for IVP and BVP. 5. Students will be able to apply shooting method, finite difference methods.
Mapping between COs with PSOs	

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	■						
CO2	■			■	■		■
CO3	■	■					■
CO4	■						■
CO5		■	■		■		

Course content

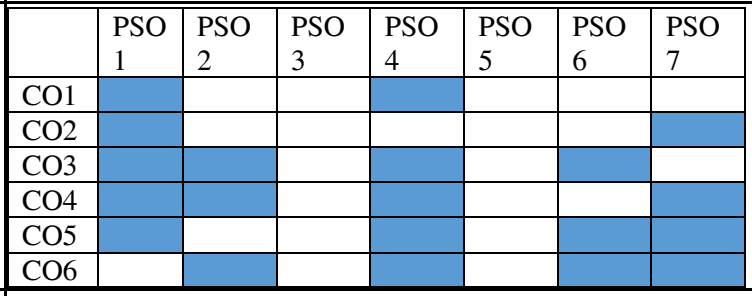
Unit-I:
Numerical Differentiations:
Numerical differentiations, optimum choice of step-length, extrapolation methods, partial differentiations.

Unit-II:
Numerical Integrations:
Numerical integrations, methods based on interpolations, methods based on undetermined coefficients, composite integration methods, Romberg Integration.

Unit-III:
Ordinary Differential Equations (Initial Value Problem):
Difference equations, single step methods, stability analysis of single step methods, multistep methods, stability analysis of multistep methods.

	UNIT-4 Ordinary differential equations (Boundary Value Problem): Shooting method, finite difference methods.
References	1. M. K. Jain, S. R. K. Iyenger, R. K. Jain: "Numerical Methods for scientific and engineering computations", VI – edition, New Age International Publishers 2. Philips and Taylor: "Theory and Applications of Numerical Analysis Academic Press", 1996 3. Gourdin and Boumhart: "Applied Numerical Analysis", P.H.I., 1996 4. A. S. Householder: "Theory of Matrices in Numerical Analysis", Blarsedell - New York. 5. Jacques and Colin: "Numerical Analysis", Chapman & Hall, New-York, 1987.

M.Sc. Semester – III

Course Code	**PGMTH-301**
Course Title	**Functional Analysis – I**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objective	To introduce basic concepts of unctional Analysis namely normed spaces, bounded linear functionals, and study their applications and also to introduce fundamental results in Functional Analysis namely Hahn-Banach Theorem, open mapping theorem and closed graph theorem and study their applications.
Course Outcomes	1. Students learns the properties of Banach spaces, 2. Students learns normed spaces and inner product spaces 3. Students learns linear operators, bounded linear operator. 4. Students learns difference between finite and infinite dimensional space, Banach space and Hilbert space 5. Student will be able to compute the dual spaces of certain Banach spaces. 6. Students will be able to appreciate the power of classical results of Functional Analysis.
Mapping between COs with PSOs	
Course content	Unit-I: Metric Space: Metric space, further examples of metric spaces, examples. completeness proofs.

	Unit-II: Normed Spaces and Banach Spaces: Vector space, normed space, Banach space, further properties of normed spaces, finite dimensional normed space and subspaces, compactness and finite dimension Unit-III: Linear operators, bounded and continuous linear operators, linear functionals, linear operators and functionals on finite dimensional spaces, normed spaces of operators, dual space. Unit-IV: Inner Product Spaces, Hilbert Spaces: Inner product space, Hilbert space, further properties of inner product spaces, orthogonal complements and direct sums.
References	1. E. Kreyszig: Introductory Functional Analysis with applications, John Wiley and Sons. 2. B.V. Limaye: Functional Analysis, Wiley Eastern Ltd. 3. G. F. Simmons: Introduction to Topology and Modern Analysis, McGraw - Hill. 4. J. N. Sharma & A. Vashistha: Functional Analysis.

Course Code	**PGMTH-302**
Course Title	**Differential Equations**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	To introduce first and second order partial differential equations and their classifications and methods of finding solutions of these partial differential equations.
Course Outcomes	1. Students learns about the Paffian differential equations and its applications. 2. Students learns about integral surfaces passing through a given curve, surfaces orthogonal to a given system of surfaces. 3. Students learns about nonlinear partial differential equations of the first order, compatible systems of first-order equations, Charpit's method, Jacobi's method. 4. Students studies about applications of separation of variable method. 5. After successful completion of the course, students will be able to find the solutions of first and second order linear and non-linear partial differential equations.
Mapping between COs with PSOs	

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
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CO3							
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Course content	Unit-I: Ordinary Differential Equations in More than Two Variables: Surfaces and curves in three dimensions, simultaneous differential equations of the first order and the first degree in three variables, methods of solutions of $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$, orthogonal trajectories of a system of curves on a surface, Pfaffian differential forms and equations, solution of Pfaffian differential equations in three variables. Unit-II: Partial Differential Equations of the First Order: Partial differential equations, origins of first-order partial differential equations, linear equations of the first order, integral surfaces passing through a given curve, surfaces orthogonal to a given system of surfaces. Unit-III: Nonlinear partial differential equations of the first order, compatible systems of first-order equations, Charpit's Method, special types of first order equations, solutions satisfying given conditions, Jacobi's method. Unit-IV: Partial Differential Equations of the Second Order: Linear partial differential equations with constant coefficients, equations with variable coefficients, separation of variables, nonlinear equations of the second order.
References	1. Sneddon I. N.: Elements of Partial Differential Equations, McGraw Hill, International Editions, 1957 2. Zafar Hasan: Differential Equations and their applications, Second Edition, PHI, 2009. 3. Iyengar S. N.: Differential Equations, Anmol Publications, 2000 4. Sharma, Gupta: Differential Equations, Krishna Prakashan Media, 1997- 98.

Course Code	**PGMTH-303**
Course Title	**Calculus of Variations**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	Introduce the concept of bounded variation, Variational problems and principal, functional, Jacobi Condition, Weirstrass Function, Legendre Condition, Second Variation
Course Outcome	1. Students learns about the concept of variations and its properties. 2. Students learns about Functionals and its properties. 3. Students studies variational problem with a movable boundary for a functional dependent on two functions, one-sided variations, reflection and refraction.

<table>
<tr><td></td><td>4. After successful completion of the course, students should be able to solve variational problems.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
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<tr><th></th><th>PSO 1</th><th>PSO 2</th><th>PSO 3</th><th>PSO 4</th><th>PSO 5</th><th>PSO 6</th><th>PSO 7</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>CO5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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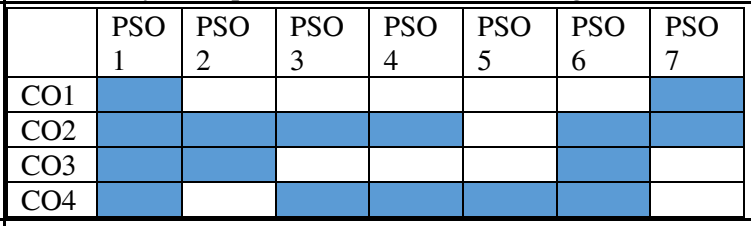
<tr><td>Course content</td><td>Unit-I:
Variational Problems with Fixed Boundaries:
The concept of variation and its properties, Euler’s equation, fundamental lemma of calculus of variation.

Unit-II:
Functionals:
Functionals dependent on several functions of independent variable, functionals dependent on higher-order derivatives, Functionals dependent on functions of several independent variables, variational problems in parametric form.

Unit-III:
Variational Problems with Moving Boundaries:
Variation of functional with moving boundary, variational problem with a movable boundary for a functional dependent on two functions, one-sided variations, reflection and refraction of extremals.

Unit-IV:
Sufficient Conditions for an Extremum:
Field of extremals, Jacobi condition, Weirstrass function, Legendre condition, second variation, canonical equations and variational principles, complementary variational p rinciples.</td></tr>
<tr><td>References</td><td>1. A.S. Gupta: “Calculus of Variations with Applications”, Prentice Hall of India Pvt. Ltd., New Delhi.
2. Robert Weinstock: “Calculus of Variations with Applications to Physics”.
3. Els Gok L. D.: “Calculus of Variation”.
4. Mariano Giaquinta, Stefan Hildebrandt: “Calculus of Variations-I”, Springer Science & Business Media, 2004</td></tr>
</table>

Course Code	**PGMTH-304**
Course Title	**Advanced Linear Algebra-I**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	To provide knowledge of Vector space, Dual space, Linear transformation, Real Quadratic forms. To provide a framework to deal with analytical and geometrical problems. To apply the concepts and methods in imagination of dimension, data transformation, Image processing and various fields of Applied

	Sciences.
Course Outcomes	1. Students will learn about properties of Vector space, Dual space, Algebra of linear transformations, Algebra of Matrices. 2. Students will determine a subspace, span, bases, row space, column space and null space for vector space in n^{th} dimension 3. Students will identify linear transformations of finite dimensional vector spaces and compose their matrices in specific bases. 4. After successful completion of the course, students should be able to analyse the problems related to Linear algebra.
Mapping between COs with PSOs	
Course content	Unit-I: Vector Space: Vector space, homeomorphisms, quotient space, internal direct sum, external direct sum, linear independence and basis. Unit-II: Dual Spaces: Hom (V,W), dimension of Hom (V,W), dual space of vector space, second dual, annihilator of subspace, dimension of an annihilator of a subspace and its application to homogeneous linear equations. Unit-III: Linear Transformations: Algebra, algebra of linear transformations $A(V)$, Relation between algebra A and $A(V)$, minimal polynomial for linear transformation, regular and singular linear transformations, rank of linear transformation, characteristic roots and characteristic vectors, algebra of matrices. Unit-IV: Real Quadratic Forms: Quadratic form, rank and signature of quadratic forms.
References	1. I. N. Herstein : Topics in Algebra 4th Ed., John Wiley Sons. 2. Kenneth Hoffman and Ray Kunze : Linear Algebra, Eastern Economy Editions. 3. D. S. Dummit and R. M. Foote: Abstract Algebra, John Wiley & Sons, 2004. 4. N. Jacobson: Lectures in Abstract Algebra Vol. I (1951), II (1952), Van Nostrand Co., New York.
Optional Papers	
Course Code	**PGMTH-3001**
Course Title	**Fluid Dynamics**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
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CO3	■	■				■	
CO4	■		■	■	■	■	

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<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Objectives</td><td>To provide the knowledge of Theory of Fluid Dynamics</td></tr>
<tr><td>Course Outcomes</td><td>1. Students learns about basic fundamentals of fluid dynamics such as Conservation Laws, Conservation of mass, momentum and energy.
2. Students will be able to distinguish one dimensional, two dimensional and three-dimensional flow.
3. Student learns about Bernoulli Equation, Potential equation, Reynold’s transport theorem, Navier-stokes equation.
4. Students will be familiar with the fluid statics, kinematics of fluid and dynamics of fluid.
5. Students will be able to enhance ability of analyzing mathematical problems related to Fluid dynamics.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
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<tr><td>CO5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>Course content</td><td><u>Unit-I</u>:
Vector concept of fluid dynamics:
Scalar and vector properties, cross product and dot product of vectors, magnitude and direction of a vectors, gradient, curl and divergent operators.

<u>Unit-II</u>:
Fluid statics:
Basic definitions of fluid, Pascal’s law, basic property of a static fluid, pressure at the vertical level, equality of pressure at the same level, general equation for the variation of pressure, Buoyancy.

<u>Unit-III</u>:
Kinematics of fluid:
Flow descriptions (Lagrangian, Eulerian, material derivative), motion of fluid particles (rate of dilation, rate of shear, rate of rotation), uniform flow, non-uniform, steady, unsteady flow one, two and three dimensional flow, rotational and irrational flow, laminar and turbulent flow line of flow (stream line, path line, strake line, time line)

<u>Unit-IV</u>:
Dynamics of fluid:
Velocity of a fluid particle at a point, stream tube, Euler Equation, Bernoulli equation, conservation laws, potential equation, Reynold’s transport theorem, conservation of mass, conservation of momentum, conservation of energy, Navier-Stokes equation.</td></tr>
<tr><td>References</td><td>1. Batchelor G.K.: An Introduction to Fluid Dynamics, Cambridge University Press, 1999.
2. Emanuel G: Analytical Fluid Dynamics, CRC Press, Boca Raton, Second Edition, FL, 1999.
3. Panton R. L., Incompressible Flows, Wiley Interscience, 1984
4. Currie I. G.: Fundamental Mechanics of Fluids, McGraw-Hill,</td></tr>
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<tr><td></td><td>New York, 1993.
5. Chorin: Mathematical introduction to Fluid Mechanics, Springer Verlag, Fourth Edition</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Course Code</td><td>PGMTH-3002</td></tr>
<tr><td>Course Title</td><td>Mathematical Software</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>20 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Objectives</td><td>To provide knowledge of Computer programming and problem solving methodology through MATLAB</td></tr>
<tr><td>Course Outcomes</td><td>1. Students will get comprehensive knowledge of computer programming language.
2. Students learns about plotting graph, developing algorithm.
3. Students learns about implementation in scientific problem solving techniques.
4. Students will be able to solve problems using programming language.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
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<tr><td>Course content</td><td><u>Unit-I</u>:
Introduction:
Introduction to MATLAB, variable and array, subarrays, displaying output data, data files operation on array, hierarchy of operation on array, built in function in MATLAB.

<u>Unit-II</u>:
Plotting:
Introduction to plotting, graph window, two-dimensional plot, multiple plot, components of graph (legend, title), graphical image, commet, 3D graph, additional plotting features
Subplots, polar plots,

<u>Unit-III</u>:
Programming:
The IF construct, switch construct, The try-catch construct, relational operators, logic operators, logical function, while loop, for loop, The break and continue statements, Nesting loops.

<u>Unit-IV</u>:
User defined function:
Introduction to MATLAB functions, variable passing in MATLAB (pass by value), preserving data between calls to functions, sub functions, private function, nested function</td></tr>
</table>

<table>
<tr><td>References</td><td>1. Chapman Stephen: MATLAB programming for engineers, Thompson learning, 2004.
2. Rudra Pratap: getting started with MATLAB, Oxford university Press, 2004</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Course Code</td><td>PGMTH-3003</td></tr>
<tr><td>Course Title</td><td>Linear programming</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>20 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Objectives</td><td>To develop problem solving skills and to acquire knowledge on basic concepts of in linear programming problems, Transportation problems, Integer programming, Dynamic programming. Assignment problems and Job sequencing.</td></tr>
<tr><td>Course Outcomes</td><td>1. Students learns fundamentals of Linear Programming, Dynamic programming, Integer programming and sensitivity analysis.
2. Students will be able to convert standard business problems into linear programming problems and can solve using simplex algorithm.
3. Students will be able to identify and develop Linear programming problem of operational research models from the verbal description of the real System.
4. Students will be able to formulate and solve a linear programming problem by simplex method.
5. Students will be able to apply Revised simplex method, Dynamic programming, Branch and Bound Techniques.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
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</td></tr>
<tr><td>Course content</td><td><u>Unit-I</u>:
Linear Programming:
General linear programming problem (LPP), canonical and standard form of LPP, graphical method, Simplex method, fundamental properties of the solution, degeneracy in LPP, solution of LPP using Simplex method, concept of duality, fundamental theorem of duality, properties of duality, revised Simplex method.

<u>Unit-II</u>:
Dynamic Programming:
Introduction, recursive equation approach, characteristic of dynamic programming, solution of discrete dynamic programming problem, solution of LPP by dynamic programming.

<u>Unit-III</u>:
Integer Programming:
Introduction, all and mixed integer programming problems (IPP), Gomory’s All-IPP method, All-IPP algorithm, the branch and</td></tr>
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<tr><td></td><td>bound techniques.

Unit-IV:
Post-optimality Analysis:
Sensitivity analysis, discrete change in the cost-vector, in requirement-vector and in the coefficient matrix, Structural changes in LPP.</td></tr>
<tr><td>References</td><td>1. Kanti Swarup, P. K. Gupta and Manmohan: Operations Research, Sultan Chand and Sons.
2. S. D. Sharma: Operations Research, Kedar Nath, Ram Nath & Co.
3. S. S. Rao: Optimization Theory and Applications, Wiley Eastern, 1984.
4. J. K. Sharma: Operations Research: Theory and Applications, Macmillan India Ltd., Third Edition, 2007</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Course Code</td><td>PGMTH-3004</td></tr>
<tr><td>Course Title</td><td>Operations Research</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>20 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Objectives</td><td>To enhance problem solving skills of linear programming problems. To provide knowledge of theory of inventory control, PERT-CPM, Transportation problems.</td></tr>
<tr><td>Course Outcomes</td><td>1. Students will be able to identify inventory problem & solve it by PERT-CPM technique, Transportation problem and simulations.
2. The student will be able to formulate and solve the Transportation problem.
3. The student will be able to solve LPP by PERT-CPM method.
4. Students should be able to explore various Mathematical programming algorithms to solve real life problems.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><th></th><th>PSO 1</th><th>PSO 2</th><th>PSO 3</th><th>PSO 4</th><th>PSO 5</th><th>PSO 6</th><th>PSO 7</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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</td></tr>
<tr><td>Course content</td><td>Unit-I:
Inventory Control:
Introduction to various types of inventory problems, method with known demand function, economic order quantity (EOQ), deterministic inventory problems when shortages are allowed deterministic inventory problems when shortages are not allowed, EOQ problems with price breaks.

Unit-II:
PERT – CPM:
Introduction to network with basic components, rules of network</td></tr>
</table>

<table>
<tr><td></td><td>construction, time calculation in network, CPM - PERT, PERT calculations, advantages of PERT-CPM, project cost, time cost, optimization algorithm, resource allocation and scheduling.

Unit-III:
Transportation Problem:
Definition of transportation problem, basic feasible solution (BFS) to transportation problem, different methods for finding BFS to the transportation problem, method of finding optimum solution to the transportation problem, degeneracy for transportation problem, unbalanced transportation problem.

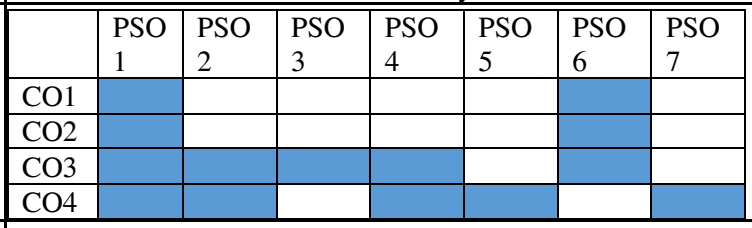
Unit-IV:
Simulation:
Introduction, why simulation, methodology of simulation, generation of random numbers.</td></tr>
<tr><td>References</td><td>1. Operations research by Kanti Swarup, P. K. Gupta and Man Mohan. S. Chand & Sons, New Delhi. Seventh Edition, 1994.
2. Operation Research: Theory and Applications by J. K. Sharma, Macmillan India Ltd., Third Edition, 2007.
3. Operations Research by S.D. Sharma. Kedarnath Ramnath Pub.1998. Merrut.
4. Optimization Methods in Operation Research and System Analysis by K. V. Mittal and C. Mohan, New Age International Publishers, Third Edition, 1996.</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Course Code</td><td>PGMTH-3005</td></tr>
<tr><td>Course Title</td><td>Integral Transforms-I</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>20 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Objectives</td><td>To provide practice of solving the real problem in scientific way using techniques of various types of Transforms. To gain command of using the transform, both specific techniques and general principles.</td></tr>
<tr><td>Course Outcomes</td><td>1. Students will learn about the concepts of Laplace Transforms, Inverse Laplace Transforms, Finite Laplace Transforms.
2. Students learns about applications of Laplace transforms.
3. Students will be able to solve the Ordinary and Partial differential equations using Laplace transforms.
4. Students will be able to solve initial and boundary value problems and integral equations.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><th></th><th>PSO 1</th><th>PSO 2</th><th>PSO 3</th><th>PSO 4</th><th>PSO 5</th><th>PSO 6</th><th>PSO 7</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Course content</td><td>Unit-I:
Laplace Transforms:
Introduction and definition of Laplace transforms with examples,</td></tr>
</table>

	existence condition and basic properties of Laplace transforms, the convolution theorem and properties of convolution, differentiation and integration of Laplace transforms Unit-II: Inverse Laplace Transforms: The inverse Laplace transforms and examples, Tauberian theorem and Watson's lemma, Laplace transforms of fractional integrals and fractional derivatives Unit-III: Finite Laplace Transforms: Introduction, definition of finite Laplace transforms with examples, basic operational properties of finite Laplace transforms Unit-IV: Applications of Laplace Transforms: Application of Laplace transforms to ordinary and partial differential equations, initial and boundary value problems and integral equations, evaluation of definite integral
References	1. Lokenath Debnath: Integral Transform and their applications, CRC Pub., 1995. 2. Ian Sneddon : The use of Integral Transform. TMIH, 1979. 3. B. Davies : Integral Transforms and their applications, Springer - Verlag, 1978. 4. Boss M. L. : Mathematical Methods in Physical Sciences, John Wiley & Sons, 1983. 5. Andrews, L. G. and Shivamoggi B. K.: Integral Transforms for Engineers, PHI, 2003.

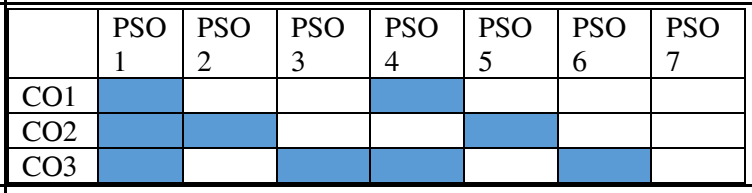
Course Code	**PGMTH-3006**
Course Title	**Advanced Integral Transforms-I**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	To provide command over solving the real-life problems using techniques of various types of Transforms. To get familiar with using the transform, both specific techniques and general principles.
Course Outcomes	1. Students will be able to learn about Hankel transform, Finite Hankel transforms 2. Students learns about Hilbert and Stieltjes transforms. 3. Students will be able to learn applications of all these transformations. 4. Students will be able to solve the partial differential equations using Hankel transforms. 5. Students will be able to solve differential equations using Hilbert and Stieltjes transforms.
Mapping between COs with PSOs	

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1							

	CO2 ■ ■ ■ ■ ■ ■ ■ CO3 ■ ■ ■ ■ ■ ■ ■ CO4 ■ ■ ■ ■ ■ ■ ■ CO5 ■ ■ ■ ■ ■ ■ ■
Course content	Unit-I: Hankel Transforms: Introduction and definition of Hankel transform, examples on Hankel transform, Operational properties of the Hankel transform. Unit-II: Finite Hankel Transforms: Introduction and definition of the finite Hankel transforms. finite Hankel transforms of some elementary functions, basic operational properties with examples. Unit-III: Application Hankel transforms: Application of Hankel transforms to partial differential equations, Applications of finite Hankel transforms. Unit-IV: Hilbert and Stieltjes Transforms (HST): Introduction and definition of HST with examples, Basic operational properties of HST, Hilbert transform in the complex plane and its applications, theorem for Stieltjes transform and its application, asymptotic expansion of the one-sided Hilbert transform, the generalized Stieltjes transform, Basic properties of the generalized Stieltjes transforms with applications.
References	1. Lokenath Debnath: Integral Transform and their applications, CRC Pub., 1995. 2. Ian Sneddon: The use of Integral Transform. TMIH, 1979. 3. B. Davies : Integral Transforms and their applications, Springer - Verlag, 1978. 4. Boss M. L. : Mathematical Methods in Physical Sciences, John Wiley & Sons, 1983. 5. Andrews, L. G. & Shivamoggi B. K.: Integral Transforms for Engineers, PHI, 2003.
Course Code	**PGMTH-3007**
Course Title	**Advanced Number Theory-I**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	To get knowledge of key concepts in number theory, like - Primitive roots and indices, Quadratic Reciprocity Law, Quadratic congruence. To get familiar with the sequence of Fibonacci numbers and to derive various identities involving Fibonacci numbers.
Course Outcome	1. Students will learn about Primitive roots and Indices 2. Students will be able to understand the logic of the Quadratic

	Reciprocity Low, 3. Students learns about Fibonacci numbers and its various properties. 4. Students will be able to solve various problems and prove various theorems of number theory.
Mapping between COs with PSOs	
Course content	Unit-I: Primitive Roots and Indices: The order of an integer modulo n, primitive roots for primes, composite numbers having primitive roots. Unit-II: The theory of indices. The quadratic reciprocity law: Euler's criterion, the Legendre symbol and its properties, Gauss' lemma. Unit-III: Quadratic reciprocity and quadratic reciprocity law, quadratic congruence with composite moduli. Unit-IV: Fibonacci numbers: The Fibonacci sequence, identities involving Fibonacci numbers.
References	1. David M. Burton : Elementary Number Theory, McGraw Hill Education (India) Pvt. Ltd., New Delhi, 7th edition, 2012. 2. S. G. Talang : Number Theory, The Tata McGraw Hill Co. Ltd., New Delhi. 3. Neville Robbins : Beginning Number Theory, Narosa Pub. House, New Delhi, 2nd Ed., 2006. 4. I. Niven, S. Zuckerman, L. Montgomery: An Introduction to the Theory of Numbers, 6th edition, John Wiley and Sons, Inc., New York, 2003. 5. George Andrews : Number Theory, The Hindustan Pub. Corp., New Delhi.

Course Code	**PGMTH-3008**
Course Title	**Analytic Number Theory**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020

Course Objectives	The main goals of the course are to help students develop an understanding of arithmetic functions and their utility in the analytic theory of numbers as an essential tool in understanding a variety of combinatorial phenomena that arise in the additive theory of numbers and elsewhere.
Course Outcome	1. Students will be acquainted with the various arithmetic functions. 2. Students will be acquainted with the Dirichlet multiplication and elementary theorems on prime numbers. 3. Students learns about Chebyshev's functions, divisor functions $d(n)$, Mangöldt function, Abel's identity. 4. Students will be able to analyze the number theoretic problems.
Mapping between COs with PSOs	
Course content	Unit-I: Arithmetical functions and Dirichlet multiplication: The Dirichlet product of two arithmetical functions (a.f.) and group structure w.r.t. this product, the Mangöldt function, multiplicative a.f., the inverse of a completely multiplicative a.f., Liouville's function $\lambda(n)$, the divisor functions $d(n)$ and $\sigma_\alpha(n)$, generalized convolution. Unit-II: Averages of Arithmetical Functions: The big oh notation, Euler's summation formula, some elementary asymptotic formulas, the average order of divisor functions $d(n)$ and $\sigma_\alpha(n)$. Unit-III: The average order of functions $\phi(n), \mu(n), \Lambda(n)$, lattice points visible from the origin, the partial sums of a Dirichlet product, applications to $\mu(n)$ and $\Lambda(n)$. Unit-IV: Some elementary theorems on the distribution of prime numbers: Chebyshev's functions $\psi(x)$ and $\vartheta(x)$, Abel's identity, relation between $\psi(x), \pi(x)$ and $\vartheta(x)$, equivalent forms of prime number theorem, lower and upper bounds for $\pi(n)$ and p_n.
References	1. Tom M. Apostol : Introduction to Analytic Number Theory, Narosa Pub. House, New Delhi, 1998 Ed. 2. Mc Carthy P. J. : Introduction to Arithmetical function, Springer-Verlag, New York, 1986. 3. K. Chandrashekharan : Introduction to Analytic Number Theory, Springer-Verlag, New York, 1968. 4. Hua L. K. : Introduction to Number Theory, Springer-Verlag, New York, 1982.
Course Code	**PGMTH-3009**
Course Title	**Special Functions-I**

	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1	■			■			
CO2	■	■			■		
CO3	■		■	■		■	

<table>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>20 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Outcomes</td><td>To Learn the concept of Infinite product, Gamma and Beta functions and Hypergeometric functions. To analyse properties of Special Functions by their integral representations and symmetries.</td></tr>
<tr><td>Course Outcomes</td><td>1. Students understands the fundamentals concept of infinite product, Gamma and Beta functions with properties.
2. Students understands the structure of the Gamma and Beta functions,
3. Gamma function, Beta function and special functions are used to evaluate different types of integral calculus problems
4. Students will get profound knowledge of Hypergeometric function and its properties.
5. Students will be able to give the rigorous proof of various theorems.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
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<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>Course content</td><td><u>Unit-1</u>:
Definition of an infinite product, a necessary condition for convergence, the associated series of logarithms, absolute convergence, uniform convergence.

<u>Unit-2</u>:
The Euler or Mascheroni constant γ, the Gamma function, a series for $(z)'(z)$, evaluation of (1) and (1)′, the Euler product for (z) , the difference equation $(z+1) = z\ (z)$, the order symbols o and 0, evaluation of certain infinite products, Euler integral for (z)

<u>Unit-3</u>:
The Beta function, the value of $(z)\ (1- z)$, the factorial function, Legendre's duplication formula, Gauss' multiplication theorem, a summation formula due to Euler, the behaviour of $\log(z)$ for large z.

<u>Unit-4</u>:
The function F(a, b; c; z), a simple integral form, F(a, b; c; 1) as a function of the parameters, evaluation of F(a, b; c; 1), the contiguous function relations, the hypergeometric differential equation, logarithmic solutions of the hypergeometric equation, F(a, b; c; z) as a function of its parameters, simple transformations, relation between functions of Z and 1-Z, a quadratic transformation, other quadratic transformations, a theorem due to Kummer, additional properties.</td></tr>
<tr><td>References</td><td>1. E. D. Rainville, Special Functions, McMillan, New York, 1990.
2. I. N. Sneddon, Special functions of Mathematical Physics and Chemistry, Oliver Boyd.</td></tr>
</table>

<table>
<tr><td></td><td>3. N. N. Lebdev, Special Functions and their applications, Dover Pub. 1972.
4. R. K. Saxena and D. C. Gokhroo, Special Functions, Khanna Pub.</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Course Code</td><td>PGMTH-3010</td></tr>
<tr><td>Course Title</td><td>Advanced Special Functions-I</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>20 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Objectives</td><td>To learn the concept of Generalized Hypergeometric functions, Bessel Functions, the Confluent Hypergeometric function. To analyse properties of Special Functions by their integral representations and symmetries.</td></tr>
<tr><td>Course Outcomes</td><td>1. Students learns generalized Hypergeometric functions.
2. Students learns Bessel functions and its various properties, the Confluent Hypergeometric function and its application.
3. Students understands the concept of Generating functions and its utilization</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><th></th><th>PSO1</th><th>PSO 2</th><th>PSO 3</th><th>PSO 4</th><th>PSO 5</th><th>PSO 6</th><th>PSO 7</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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</td></tr>
<tr><td>Course content</td><td><u>Unit-1:</u>
Generalized Hypergeometric functions:
The function pFq, the exponential and binomial functions, a differential equation, other solutions of the differential equation, the contiguous function relations, a simple integral, the pFq with unit argument, Saalschutz' theorem, Whipple's theorem, Dixen's theorem, Contour integrals of Barns' type, the Berns' integrals and the function pFq, a useful integral.

<u>Unit-2:</u>
Bessel functions:
Remarks, definition of Jn(z), Bessel's differential equation, Differential recurrence relations, a pure recurrence relations, a generating function, Bessel's integral, index half of an integer, modified Bessel functions, Neumann polynomials, Neumann series.

<u>Unit-3</u>:
The confluent Hypergeometric function:
Basic properties of the 1F1, Kummer's first formula, Kummer's second formula.

<u>Unit-4:</u>
Generating functions:
The generating function concept, generating functions of the form G(2xt – t^2), sets generated by $e^t\psi$ (xt) , the generating functions</td></tr>
</table>

<table>
<tr><td></td><td>$A(t)\exp(-xt(1-t))$, another class of generating functions, Boas and Buck generating functions, an extension.</td></tr>
<tr><td>Reference</td><td>1. E. D. Rainville, Special Functions, McMillan, New York, 1990.
2. I. N. Sneddon, Special functions of Mathematical Physics and Chemistry, Oliver Boyd.
3. N. N. Lebdev, Special Functions and their applications, Dover Pub. 1972.
4. R. K. Saxena and D. C. Gokhroo, Special Functions, Khanna Pub.</td></tr>
<tr><td colspan="2">M.Sc. Semester – IV</td></tr>
<tr><td>Course Code</td><td>PGMTH-401</td></tr>
<tr><td>Course Title</td><td>Functional Analysis-II</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>20 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Objectives</td><td>To develop skills and to acquire knowledge of advanced concepts in Hilbert spaces, Representation of functional on Hilbert spaces, Category theorem, Open mapping theorem, Closed Graph theorem, Hahn-Banach theorem and its applications, Spectral theory.</td></tr>
<tr><td>Course Outcomes</td><td>1. Students will have understanding of the Hilbert space theory and the Hahn-Banach Theorem. They will also have close encounter with normal, unitary and self-adjoint operators.
2. The students will be able to characterize the category of normed spaces using Category theorem and differentiate weak and pointwise convergence of linear operators.
3. Upon completion of this unit, the students will be able to demonstrate spectral properties of Bounded Linear operators.
4. The students will be able to understand Banach algebras, demonstrate spectral properties of compact linear operators.
5. The students will be able to study operator equations involving compact linear operators.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><th></th><th>PSO1</th><th>PSO 2</th><th>PSO 3</th><th>PSO 4</th><th>PSO 5</th><th>PSO 6</th><th>PSO 7</th></tr>
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<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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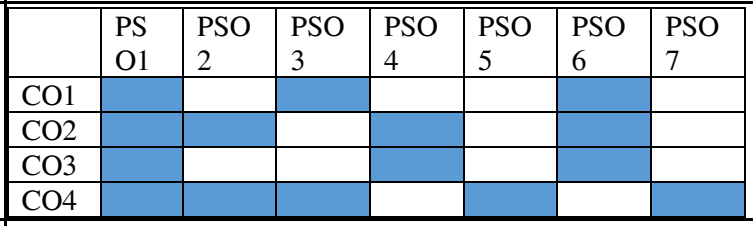
</td></tr>
<tr><td>Course content</td><td><u>Unit-I</u>:
Inner product spaces and Hilbert spaces:
Total orthonormal sets and sequences, representation of functionals on Hilbert spaces, Hilbert-Adjoint operator, self-adjoint, unitary and normal operators.

<u>Unit-2</u>:
Fundamental Theorems for Normed and Banach Spaces:
Zorn’s lemma, Hahn-Banach theorem, Hahn-Banach theorem for complex vector spaces and normed spaces</td></tr>
</table>

	Unit-3: Adjoint operator, reflexive spaces, category theorem, uniform boundedness theorem Unit-4: Strong and weak convergence, convergence of sequences of operators and functionals, open mapping theorem, closed linear operators, closed graph theorem.
References	1. E. Kreyszig: Functional Analysis and its application, John Wiley and sons. 2. B.V. Limaye: Functional Analysis, Wiley Eastern Ltd. 3. G.F. Simmons: Introduction to Topology and Modern Analysis, McGraw – Hill. **4.** J.N. Sharma & A.Vashistha: Functional Analysis.
Course Code	**PGMTH-402**
Course Title	**Differential Geometry**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	To understand the concept of curvature of a space curve and signed curvature of a plane curve. To understand the fundamental theorem for plane curves. To get introduced to the notion of Serret-Frenet frame for space curves and the involutes and evolutes of space curves with the help of examples. To be able to compute the curvature and torsion of space curves. To be able to understand the fundamental theorem for space curves.
Course Outcomes	1. Students will be able to learn about curvatures, tangent, involutes, evolutes and developable surfaces. 2. Students will be able to compute the curvature and torsion of space curves. 3. Students will be able to understand the fundamental theorem for space curves 4. Students will be able to build up Geometry Intuition by incorporating classical curves and related results along with this course.
Mapping between COs with PSOs	
Course content	Unit-1: Tangent, principal normal, curvature, binormal torsion Serret-Frenet formulae, helices, spherical indicatrix of tangent etc. Unit-2: Involutes, evolutes, Bertrand curves. Unit-3:

<table>
<tr><td></td><td>Surfaces, tangent plane normal, envelope characteristics, edge of regression.

Unit-4:
Developable surfaces, osculating developable, envelope characteristic points.</td></tr>
<tr><td>References</td><td>1. Whetherburn C. E. : Differential Geometry of 3-D, Radha Publishing, Calcutta.
2. T. J. Willmore: An Introduction to Differential Geometry, Oxford University Press (India).
3. Bansilal: Differential Geometry, 1994 Atma Ram and sons, Allahabad.
4. S. C. Mittal and D. C. Agrawal : Differential Geometry, Krishna Publication, 1976
5. S. Kumaresan : A Course in Differential Geometry and Lie Groups, Hindustan Book Agency, 2002
6. Sinha B. B. : An Introduction to Modern Differential geometry, Kalyani Publishers, New Delhi, 1982</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Course Code</td><td>PGMTH-403</td></tr>
<tr><td>Course Title</td><td>Integral Equations</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>20 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Objectives</td><td>This course emphasizes concepts and techniques for solving integral equations from an applied mathematics perspective. To make the students familiar with the methods of solving Integral equations.</td></tr>
<tr><td>Course Outcomes</td><td>1. Students learns about the integral equations and related results and theorems.
2. Students will be able to classify the Integral equations.
3. Students will be able to apply the methods and concepts to solve integral equations.
4. Students will be able to recognize difference between Volterra and Fredholm Integral Equations, First kind and Second kind, homogeneous and inhomogeneous etc.
5. Students will be able to apply different methods to solve integral equations.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
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<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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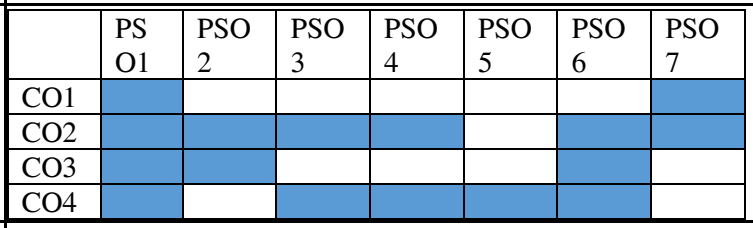
</td></tr>
<tr><td>Course content</td><td>Unit-I:
Preliminary Concepts:
Integral equations, classification of integral equations, solution of integral equations, some examples related to solutions of integral equations, Leibnitz’s Rule (for differentiation under integral sign), important formula for converting a multiple integral into a single</td></tr>
</table>

	ordinary integral, classification of kernels, regularity conditions, inner or scalar product of functions. Unit-II: Conversion of ODE into Integral Equations: Method of converting IVP into Volterra integral equation, alternative method of converting IVP into Volterra integral equation, method of converting BVP into Fredholm integral equation. Unit-III: Fredholm Integral Equations of second kind with Separable kernel: Eigen values and eigen functions, solution of homogeneous Fredholm integral equations of second kind with separable kernel, solution of Fredholm integral equations of second kind with separable kernel. Unit-IV: Method of Successive approximations: Iterated kernels, resolvent kernels, an Important theorem on kernels, solution of Fredholm integral equations of second kind by successive substitution, solution of Volterra integral equations of second kind by successive substitution.
References	1. M. D. Raisinghania: Integral Equations and Boundary Value Problems, S. Chand & Co., New Delhi (2007). 2. Shanti Swarup: Linear Integral Equations, Krishna Prakashan, Meerut. 3. Sudir K. Pundir and Rimple Pundir: Integral Equations and Boundary Value Problems, Pragati Prakashan, Meerut (2005). 4. Ram P. Kanwal: Linear Integral Equations Theory and Technique, Academic Press, Birkhäuser, New York (2013). 5. Cordumenau, C., Integral Equations and Applications, Cambridge University Press, 1991

Course Code	**PGMTH-404**
Course Title	**Advanced Linear Algebra-II**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	To introduce various concepts and notation for Linear Algebra. To enhance the computational proficiency involving procedures in Linear Algebra. To understand the axiomatic structure of a modern mathematical subject. To acquire knowledge to solve problems that apply Linear Algebra to Chemistry, Economics and Engineering.

Course Outcomes	1. Students learns about the Canonical forms, linear transformations related with matrix theory. 2. Students learns the concepts of application of matrix algebra to linear transformations. 3. Students learns to demonstrate understanding of inner products and associated norms. 4. Students will be able to solve problems related to matrices and linear equation, to follow complex logical arguments and develop modest logical arguments.
Mapping between COs with PSOs	
Course content	Unit-I: Canonical Forms: Similar linear transformations, triangular form, nilpotent transformations, invariants, Jordan canonical form, rational canonical form, companion matrix. Unit-II: More about Linear Transformations: Trace and its properties, transpose and its properties, symmetric and skew symmetric matrices, adjoint and Hermitian adjoint Unit-III: Determinants: Determinants and its properties, invertible properties, Cramer's rule, characteristic roots Unit-IV: Hermitian, Unitary and Normal transformations. Symmetric and skew-symmetric matrices, Hermitian and its properties, unitary and its properties, normal transformation and its properties, orthogonal matrices.
References	1. I. N. Herstein: Topics in Algebra 4th Ed., John Wiley Sons. 2. Kenneth Hoffman and Ray Kunze: Linear Algebra, Eastern Economy Editions. 3. D. S. Dummit and R. M. Foote: Abstract Algebra, John Wiley & Sons, 2004. 4. N. Jacobson: Lectures in Abstract Algebra Vol. I (1951), II (1952), Van Nostrand Co., New York.

Optional Papers

Course Code	**PGMTH-4001**
Course Title	**Computational Fluid Dynamics**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020

<table>
<tr><td>Course Objectives</td><td>To introduce the widely used techniques in the numerical solution of fluid equations, issues that arise in the solution of such equations, and modern trends in CFD. The display the use of modern computational fluid dynamics software in mechanical engineering. To build, solve, and visualize fluid-flow models to gain a deeper understanding of the principles of fluid mechanics.</td></tr>
<tr><td>Course Outcomes</td><td>1. Students learns about various methods for solving Heat equations.
2. Students learns about Wave equations, Laplace equations and poison equations.
3. Students will be aable to solve any partial differential equations related to fluid dynamics using mathematical software and programming.
4. To provide the student with a significant level of experience in the use of modern CFD software for the analysis of complex fluid-flow systems.
5. To improve the student’s understanding of the basic principles of fluid mechanics.
6. To improve the student’s research and communication skills using a self-directed, detailed study of a complex fluid-flow problem and to communicate the results in written form.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><th></th><th>PSO1</th><th>PSO2</th><th>PSO3</th><th>PSO4</th><th>PSO5</th><th>PSO6</th><th>PSO7</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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</td></tr>
<tr><td>Course content</td><td><u>Unit-I</u>:
Introduction and Classification of PDE’s:
Introduction to PDEs’, types of PDEs’, classification of PDEs’, introduction to CFD, applications, scope of CFD, governing equations and assumptions, equation types, model equations, discretization of the domain, numerical boundary conditions.

<u>Unit-II</u>:
Heat Equation:
Introduction to heat equations, Schmidt method, Richardson method, Crack-Nicolson method, Du-fort Franek method, stability of schemes, convergence of scheme.

<u>Unit-III</u>:
Wave Equations:
One dimensional Euler equations, Lax-Wendroff scheme, Mc-Cormack scheme, Implicit-method, pseudo one dimensional Euler equations, boundary conditions, flux-Splitting, artificial viscosity, flux limiters. multidimensional Euler equations, Lax-Wendroff and Mc-Cormack schemes, stability of multidimensional schemes, operator splitting implicit algorithms.

<u>Unit-IV</u>:
Laplace and Poison Equation
Finite differences, algorithms, errors and accuracy, consistency,</td></tr>
</table>

<table>
<tr><td></td><td>stability and convergence, implicit algorithms.</td></tr>
<tr><td>References</td><td>1. R. J. Leveque: Numerical methods for conservation Laws, Birkhauser Verlag, Basel, 1992.
2. J. D. Anderson: Computation Fluid dynamics, Mc-Graw – Hill, New York, 1995.
3. H. K. Versteeg and W. Malasekera: An Introduction to Computational Fluid Dynamics: The finite volume method, Longman Scientific and technical Essex, England, 1995.
4. J. Chorin and J. E. Marsden: A Mathematical Introduction to Fluid Mechanics
5. P. D. Lax: hyperbolic systems of conservation laws and mathematical theory of hock waves, 1973.</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Course Code</td><td>PGMTH-4002</td></tr>
<tr><td>Course Title</td><td>Mathematical Modelling</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>20 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Objectives</td><td>This course introduces the basic concepts in mathematical modelling. It equips the students with mathematical modelling skills with emphasis on using mathematical models to solve real-life problems.</td></tr>
<tr><td>Course Outcome</td><td>1. Students learns about the concept of mathematical modelling and its applications.
2. Students learns about the advantages and disadvantages of models
3. Students will be able to derive first and second order models.
4. Students will be able to analyse the real life problems through mathematical modelling.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><th></th><th>PSO1</th><th>PSO 2</th><th>PSO 3</th><th>PSO 4</th><th>PSO 5</th><th>PSO 6</th><th>PSO 7</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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</td></tr>
<tr><td>Course content</td><td><u>Unit-I</u>:
Introduction to Mathematical modelling:
Needs and techniques of mathematical modeling:
Idea of mathematical modeling, need for mathematical modeling, advantages and disadvantages of model, steps in mathematical modeling, characteristics of mathematical modeling, interpretation.

<u>Unit-II</u>:
Model of Linear Algebra:
Modeling explorations, input-output economies, traffic networks, balancing chemical equations.

<u>Unit-III</u>:
First Order Models:
Models for birth, death, and immigration, difference equations and</td></tr>
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<table>
<tr><td></td><td>differential equations, stability and equilibria, Euler's Method: numerical solutions for differential equations, classifying difference and differential equations, modelling explorations with difference and differential equations.

Unit-IV:
Second Order Models:
Modelling oscillations, homogeneous linear 2nd order differential equations, forced oscillations, energy in mass spring systems, modelling explorations with 2nd order differential equations.</td></tr>
<tr><td>References</td><td>1. J. N. Kapur: Mathematical Modelling, Wiley eastern Ltd., 1994.
2. M. M. Gibbons: A concrete approach to Mathematical Modeling, John Wiley and sons, 1995.
3. H. Neunzert and A.H. Siddiqui: Topics in Industrial Mathematics, Kluwer Academic Publishers, London, 2000
4. P. E. Wellstead : Introduction to Physical System Modeling, Academic Press,1979.
5. Richard Haberman: Mathematical Models, Practice- Hall Inc., NJ, 1979.</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Course Code</td><td>PGMTH-4003</td></tr>
<tr><td>Course Title</td><td>Non-Linear programming</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>20 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Objectives</td><td>The objective is to explore various types of nonlinear programming problems with various methods, and various algorithms used to solve them.</td></tr>
<tr><td>Course Outcome</td><td>1. Students learns about various non-linear programming methods and optimization methods.
2. Students will be able to solve any real life problems through non-linear programming.
3. Ability of students to analyse the industrial problems will be enhanced.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><th></th><th>PSO1</th><th>PSO 2</th><th>PSO 3</th><th>PSO 4</th><th>PSO 5</th><th>PSO 6</th><th>PSO 7</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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</td></tr>
<tr><td>Course content</td><td>Unit-I:
One - Dimensional Non- Linear Programming Methods:
Unimodal function, unrestricted search, exhaustive search, dichotomous search, interval halving method, Fibonacci search, golden section method, comparison of elimination methods, quadratic interpolation, direct search method.

Unit-II:
Classical Optimization Methods:
Unconstraint optimization, constrain multi-variable optimization with equality constrains, constrain multi-variable optimization with</td></tr>
</table>

	inequality constrains. Unit-III: Non- Linear Programming Methods: Introduction, general Non-linear programming problems, graphical solution method, quadratic programming, application of quadratic programming, separable programming. Unit-IV: Geometric Programming: Introduction, geometric-arithmetic mean inequality, unconstrained geometric programming problem, constrained geometric programming problem.
References	1. Kantiswarup, P. K. Gupta and Manmohan: Operations Research, Sultan Chand and Sons. 2. S. D. Sharma: Operations Research, Kedar Nath, Ram Nath & Co. 3. S. S. Rao: Optimization Theory and Applications, Wiley Eastern, 1984. 4. J. K. Sharma: Operation Research: Theory and Applications, Macmillan India Ltd., Third Edition, 2007.

Course Code	**PGMTH-4004**
Course Title	**Advanced Operation Research**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	To enhance problem solving skills and acquire the knowledge of Queuing theory problems, sequencing problems, replacement problems, Games and strategies.
Course Outcomes	1. Students learns about Queuing theory related problems. 2. Students learns about sequencing problems and its solution process. 3. Students learns about theory of replacement and its utilities. 4. Students learns about Games and strategies and its applications 5. Students will be able to formulate and analyse the real world problems.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	■						■
CO2	■	■				■	■
CO3	■						
CO4	■	■	■		■	■	
CO5			■	■		■	

Course content	Unit-I: Queuing Theory: Definition and characteristic of a queuing system, Poisson process and exponential distribution, classification of queues, detailed study of M/M/1 and M/M/s queuing models.

<table>
<tr><td></td><td>Unit-II:
Sequencing Problems:
Problems of sequencing, problems with n-jobs and 2-machines, problems with n-jobs and 3-machines, problems with n-jobs and m-machines.

Unit-III:
Theory of Replacement:
Introduction, replacement of equipment that deteriorate gradually, replacement of equipment that fails completely, other replacement problems.

Unit-IV:
Games and Strategies:
Introduction, two-person zero-Sum games, the maximum-minimum principle, games without saddle points, mixed strategies.</td></tr>
<tr><td>References</td><td>1. Kantiswarup, P. K. Gupta and Manmohan: Operations Research, Sultan Chand and Sons.
2. S. D. Sharma: Operations Research, KedarNath, Ram Nath& Co.
3. S. S. Rao: Optimization Theory and Applications, Wiley Eastern, 1984.
4. J. K. Sharma: Operation Research: Theory and Applications, Macmillan India Ltd., Third Edition, 2007.</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Course Code</td><td>PGMTH-4005</td></tr>
<tr><td>Course Title</td><td>Integral Transforms-II</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>20 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Objectives</td><td>To provide technique for solving the real problems using various types of transforms. To gain a facility with using the transform, both specific techniques and general principles.</td></tr>
<tr><td>Course Outcomes</td><td>1. Students learns about complex Fourier transforms and its properties
2. Students learns about Fourier cosine and sine transforms and its properties
3. Students learns about Finite Fourier, finite Fourier cosine and sine transforms and its properties
4. Students will be able to solve partial differential equations by these transforms.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><th></th><th>PSO1</th><th>PSO2</th><th>PSO3</th><th>PSO4</th><th>PSO5</th><th>PSO6</th><th>PSO7</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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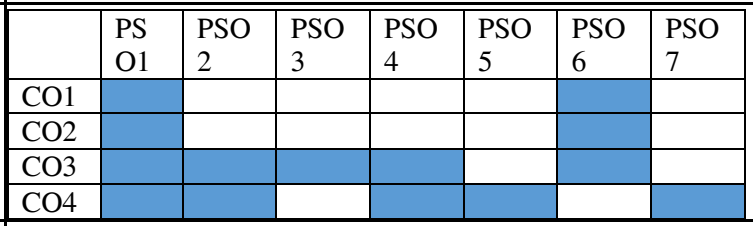
</td></tr>
<tr><td>Course content</td><td>Unit-I:
Complex Fourier Transforms:
Introduction, basic concepts and definitions, the Fourier integral formulae, definition and examples of Fourier transforms, basic</td></tr>
</table>

	properties of Fourier transforms, inversion of Fourier transforms Unit-II: Fourier Cosine and sine Transforms: Definitions of Fourier cosine and sine transforms with examples, Properties of Fourier cosine and sine transforms, proof of basic properties of Fourier cosine and sine transforms Unit-III: Finite Fourier transform and finite Fourier cosine and sine transforms: Introduction and definition of finite cosine and sine transforms with examples, basic properties of finite Fourier cosine and sine transforms, Inversion of finite Fourier transforms, finite Fourier cosine and sine transforms. Unit-IV: Applications of Fourier Transforms: Applications of Fourier transforms to solve partial differential equations, applications of Fourier cosine and sine transforms to partial differential equations, evaluation of definite integrals, applications of finite Fourier transforms, finite Fourier cosine and sine transforms, basic properties of finite Fourier cosine and sine transforms.
References	1. Loknath Debnath: Integral Transform and their applications, CRC Pub., 1995. 2. Ian Sneddon : The use of Integral Transform. TMIH, 1979. 3. B. Davies : Integral Transforms and their applications, Springer - Verlag, 1978. 4 Boss M. L. : Mathematical Methods in Physical Sciences, John Wiley & Sons, 1983. 5 Andrews, L. G. & Shivamoggi B. K.: Integral Transforms for Engineers, PHI, 2003.

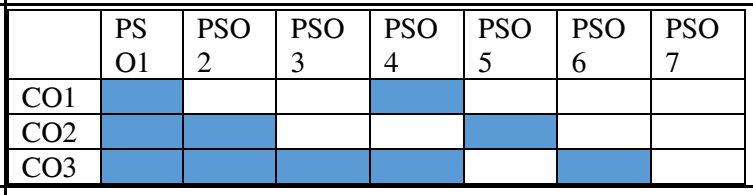
Course Code	**PGMTH-4006**
Course Title	**Advanced Integral Transforms-II**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	To provide practice of solving the real problems using techniques of various types of transforms. To gain a facility with using the transform, both specific techniques and general principles.
Course Outcome	1. Students learns about Mellin transforms and its properties 2. Students learns about Z-transforms and its properties 3. Students learns about Inverse Z transforms and its properties 4. Students learns about applications of all these transformations 5. Students will be able to solve difference equations
Mapping between COs with PSOs	

	PSO1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6	PSO 7
CO1							

	CO2 ■ ■ ■ ■ ■ ■ ■ CO3 ■ ■ ■ ■ ■ ■ ■ CO4 ■ ■ ■ ■ ■ ■ ■ CO5 ■ ■ ■ ■ ■ ■ ■
Course content	Unit-I: Mellin Transforms: Introduction and definition of Mellin transforms with examples, basic operational properties, inverse Mellin transforms, Mellin transforms of the Weyl fractional integrals and derivatives, Convolution theorems for Mellin Transforms. Unit-II: Applications of Mellin Transforms: Applications of the Mellin transforms to solve BVP, application of Mellin transforms to summation of series. Unit-III: Z-Transforms: Introduction, dynamic linear systems and impulse response, definition of the Z-transforms and examples, basic operational properties. Unit-IV: Inverse Z Transforms and applications: The inverse Z-transform and examples, application of Z-transforms to finite difference equations.
References	1) Loknath Debnath: Integral Transform and their applications, CRC Pub., 1995. 2) Ian Sneddon : The use of Integral Transform. TMIH, 1979. 3) B. Davies : Integral Transforms and their applications, Springer - Verlag, 1978. 4) Boss M. L. : Mathematical Methods in Physical Sciences, John Wiley & Sons, 1983. 5) Andrews, L. G. & Shivamoggi B. K.: Integral Transforms for Engineers, PHI, 2003.
Course Code	**PGMTH-4007**
Course Title	**Advanced Number Theory-II**
Credit	4
Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	To study the various concepts like continued fractions, linear and quadratic Diophantine equations, representation of integers as sums of squares and to solve various problems by using these techniques.

Course Outcomes	1. Students learns about continued fractions. 2. Students learns about various linear and quadratic Diophantine equations and its properties. 3. Students learns about representation of integers as sums of squares and its applicability. 4. Enhance the logical ability of the students.
Mapping between COs with PSOs	
Course content	Unit-I: Continued fractions: Simple continued fractions, finite and infinite continued fractions, uniqueness, representation of rational and irrational numbers as simple continued fractions, rational approximation to irrational numbers. Unit-II: Diophantine equations: Diophantine equation $ax + by = c$ and its positive solutions, Pell's equation, Continued fractionsolution of Pell's equation. Unit-III: Pythagorean equation $x^2 + y^2 = z^2$, the case $n = 4$ in Fermat's last theorem. Unit-IV: Representation of integers as sum of squares: Necessary and sufficient conditions for a positive integer to be represented as the sum of two squares, Fermat's theorem, positive integers represented as difference of two squares, integers that are not expressible as the sum of three squares, Euler's identity, primes represented as the sum of four squares, Lagrange's theorem.
References	1. David M. Burton : Elementary Number Theory, McGraw Hill Education (India) Pvt. Ltd., New Delhi, 7thedition, 2012. 2. S. G. Talang : Number Theory, Tata McGraw Hill Pub. Co. Ltd., New Delhi, 5th reprint, 2004. 3. Neville Robbins : Beginning Number Theory, Narosa Pub. House, New Delhi, 2nd Ed., 2006. 4. Martin Erickson, Anthony Vazzana : Introduction to Number Theory, Chapman & Hall/CRC, New York, 2008 Ed. 5. I. Niven, S.Zuckerman & L. Montgomery: An Introduction to the Theory of Numbers, 6th edition, John Wiley and Sons, Inc., New York, 2003. 6. George Andrews : Number Theory, The Hindustan Pub. Corp., New Delhi.

Course Code	**PGMTH-4008**
Course Title	**Introduction to Partition Theory and Cryptography**
Credit	4

Teaching per week	4 Hrs
Minimum weeks per Semester	20 (Including Classwork, examination, preparation, holidays etc.)
Effective from	June 2020
Course Objectives	This course is designed to provide students an introduction to classical number theory and enable them to study recent developments in the subject and to apply the concepts of public-key cryptography in real life situation.
Course Outcome	1. Students learns about Partition theory and Cryptography 2. Logical ability of students is enhanced 3. The ability to use the techniques of partition theory in real life is enhanced 4. The ability to use cryptography in real life situations is enhanced
Mapping between COs with PSOs	
Course content	Unit-I: Partition theory: An introduction, generating functions, partitions into exactly k parts, recurrence relations for $p(n,k)$ and $P(n,k)$ and relation between them, an inequality for $p(n,k)$. Unit-II: Graphs of partitions, Euler's identity, a recursion formula for $p(n)$,Durfee's identity, two-line partitions, the formula for $R(A,B)$. Unit-III: Cryptography: Cesar Cipher, Vigenère cipher, autokey cipher, Hill's cipher, RSA algorithm. Unit-IV: Knapsack problem, Superincreasing knapsack problem, Knapsack cryptosystem, an application of primitive roots to cryptography.
References	1. Hansraj Gupta: Selected Topics in Number Theory, Abacus Press, England, 1980 Ed. 2. Tom M. Apostol : Introduction to Analytic Number Theory, Narosa Pub. House, New Delhi, 1998 Ed. 3. George Andrews, Kimmo Eriksson : Integer Partitions, Cambridge Univ. Press, UK, 2004 Ed. 4. David M. Burton : Elementary Number Theory, McGraw Hill Education (India) Pvt. Ltd., New Delhi, 7th edition, 2012. 5. Martin Erickson, Anthony Vazzana : Introduction to Number Theory, Chapman & Hall/CRC, New York, 2008 Ed.

Course Code	**PGMTH-4009**
Course Title	**Special Functions-II**

<table>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>20 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Objectives</td><td>To introduce the concept of orthogonal polynomials, Legendre polynomials and Hermite polynomials. To analyze properties of special functions by their integral representations and relations between them.</td></tr>
<tr><td>Course Outcomes</td><td>1. Students learns about orthogonal polynomials and its properties.
2. Students learns about Legendre polynomials and its properties.
3. Students learns about Hermite polynomials and its properties.
4. Students will be able to prove the rigorous proof of various theorems.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
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<tr><th></th><th>PSO1</th><th>PSO 2</th><th>PSO 3</th><th>PSO 4</th><th>PSO 5</th><th>PSO 6</th><th>PSO 7</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
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</td></tr>
<tr><td>Course content</td><td>Unit-I:
Orthogonal polynomials, simple set of polynomials, orthogonality, an equivalent condition for orthogonality, zeros of orthogonal polynomials, expansion of polynomials, the three term recurrence relations, the Christoffel-Darboux formula, normalization, Bessel’s inequality

Unit-II:
Legendre polynomials, A generating function, differential recurrence relations, The pure recurrence relations, Legendre’s differential equation, The Rodrigues formula, Bateman’s generating function, additional generating functions

Unit-III:
Hypergeometric forms of Pn(X), Brafman’s generating functions, Special properties of Pn(X), more generating functions, Laplace’s first integral form, some bounds on Pn(X), orthogonality, an expansion theorem, expansion of X^n, expansion of analytic functions

Unit-IV:
Hermite polynomials:
Definition of Hn(x), recurrence relations, the Rodrigues formula, Other generating functions, integrals, the Hermite polynomial as a 2F0, orthogonality, expansion of polynomials, more generating functions.</td></tr>
</table>

<table>
<tr><td>References</td><td>1. E. D. Rainville, Special Functions, McMillan, New York, 1990.
2. I. N. Sneddon, Special functions of Mathematical Physics and Chemistry, Oliver Boyd.
3. N. N. Lebdev, Special Functions and their applications, Dover Pub. 1972.
4. R. K. Saxena and D. C. Gokhroo, Special Functions, Khanna Pub.</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td>Course Code</td><td>PGMTH-4010</td></tr>
<tr><td>Course Title</td><td>Advanced Special Functions-II</td></tr>
<tr><td>Credit</td><td>4</td></tr>
<tr><td>Teaching per week</td><td>4 Hrs</td></tr>
<tr><td>Minimum weeks per Semester</td><td>20 (Including Classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>June 2020</td></tr>
<tr><td>Course Objectives</td><td>To introduce the concepts of Laguerre polynomials, Jacobi polynomials and Elliptic functions. To analyze properties of special functions by their integral representations and relations between them.</td></tr>
<tr><td>Course Outcomes</td><td>1. Students learns about Laguerre polynomials and its properties
2. Students learns about Jacobi polynomials and its properties,
3. Students learns about Elliptic functions and its properties.
4. Students will be able to perform operations with orthogonal polynomials, Legendre’s polynomial and Laguerre polynomial along with the corresponding differential equations.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td>
<table>
<tr><th></th><th>PSO1</th><th>PSO 2</th><th>PSO 3</th><th>PSO 4</th><th>PSO 5</th><th>PSO 6</th><th>PSO 7</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Course content</td><td><u>Unit-I</u>:
Laguerre polynomials:
The polynomial Ln(X), generating functions, recurrence relations, the Rodrigues formula, the differential equation, orthogonality, expansion of polynomials, special properties, other generating functions, the simple Laguerre polynomials.

<u>Unit-II</u>:
The Jacobi polynomials, Bateman’s generating functions, the Rodrigues formula, orthogonality, differential recurrence relations, the pure recurrence relations, mixed relations.

<u>Unit-III</u>:
Appell’s functions of two variables, an elementary generating functions, Brafman’s generating functions, expansion in series of polynomials.

<u>Unit-IV</u>:
Elliptic functions:
Doubly periodic functions, elliptic functions, elementary</td></tr>
</table>

	properties, order of an elliptic function, the Weierstrass function P(Z), other elliptic functions, a differential equation for P(Z), connection with elliptic integrals.
References	1. E. D. Rainville, Special Functions, McMillan, New York, 1990. 2. I. N. Sneddon, Special functions of Mathematical Physics and Chemistry, Oliver Boyd. 3. N. N. Lebdev, Special Functions and their applications, Dover Pub. 1972. 4. R. K. Saxena and D. C. Gokhroo, Special Functions, Khanna Pub.

MRS SD 5.1 Rural Entrepreneurship

Objectives: This paper is designed to orient the students to explore, understand and undertake entrepreneurships opportunities available in the rural India so that they can become employment provider instead of employment seeker.

CO1: Students will understand the meaning of entrepreneurship and will evaluate the opportunities available in the rural area for various types of entrepreneurship.

CO2: Some of the students can start their own business.

Unit 1

Entrepreneur- Meaning and characteristics, Rise of entrepreneurship in India and its development, reasons for less development of entrepreneurs in India, Suggestions for fast development of entrepreneurship

Unit 2

Entrepreneurship- Meaning and characteristics, factors determining success, economic principles of entrepreneurship, psychological principles of entrepreneurship, need for entrepreneurship, basics of establishing a successful entrepreneurship,

Unit 3

Successful planning – Concept of product selection, importance and process; Selection of process- concept and importance; Selection of location- meaning, importance and factors affecting it; production management- meaning, base and importance; Motivation from achievers for entrepreneurship

Unit 4

Micro, small and medium Industries for rural areas. Policy for micro and small industries and various schemes to promote theme. Institute for development of micro and small industries- state and national.

References:

1. Patel D R Entrepreneurship development, Atul Prakashan, Ahmadabad
2. Entrepreneurship Part 1 and II, C Jamnadas Company, Ahmadabad
3. Badshah Leena, Sociology of Entrepreneurship, Parshva Publication, Ahmadabad

MRS SD 5.2 Sustainable Rural Development

Objectives: This course is designed to provide in depth knowledge about various components of sustainable rural development including use of natural resources and its management. The students will appreciate the methods of obtaining sustainable livelihood from agriculture, animal husbandry and other sources.

Course Outcomes:

CO1: The students understand various components of sustainable goals and development

CO2: The students appreciate the need of managing natural resources as a means of sustainable development

CO3: Through learning this course the students will understand the need for sustainable livelihood in rural areas from agriculture, animal husbandry and other sources,

CO4: The students will understand the environmental ethics and ways to measure sustainable development goals

Unit 1

Ecological, economical and human components of sustainable development. Natural resources and its importance in sustainable development. Economic aspects of sustainable development.

Role of human interventions in maintaining sustainability- role of human activities in making the system unstable, ways to stabilize the development process.

Unit II

Natural resource management for sustainable livelihood in rural areas- Problems of Indian farmers, Need for management of natural resources for sustainable agriculture production and for obtaining sustained production from animal husbandry.

Unit III

Need for sustainable livelihood systems in rural areas- migration, forced migration, problems associated with migration in rural and urban areas. Means of developing sustainable livelihood in rural set up in India.

Unit IV

Environmental ethics, goals and strategies for sustainable development, measuring the process and success of sustainable development.

References :

1 Reyazzuddin and R.P. Singh (2010) Challenges to Sustainable development in India. Deep and Deep Publications, New Delhi

2 SakaramaSomayaji Environmental concern and Sustainable Development. TERI Publication

3 Baumgartner R. and R. Hogger (ed) (2004) In Search of Sustainable Livelihood. Sage Publications.

4. Singh K. (2009) Rural Development : Principles, Policies & Management. Sage Publication

5 Rogers P.P., Jalal K.F and J A Boyd (2008) An Introduction to Sustainable Development P rentice-Hass of India Pvt.Ltd. New Delhi

6. Das Kumar (2009) Sustainable Development Reference Press, New Delhi.

7. Biswas M. (2007) Environmental Economics, Mittal Publication, New Delhi.

8. Ganesamurthy V.S. (2009) Environmental Economics in India. New Century Publication, New Delhi.

9. Ray S. (2008) Management of N.R. Institution for Sustainable Livelihood, Academic Foundation, New Delhi.

MRS SD 5.3 Common Property Resource Management

Objectives: This paper makes students to understand the importance of common property resources and need for its management for the benefit of rural poor. This will also enable the students to devise methods for managing such resources in their vicinity for the sustainable development of their villages.

COs:

CO1: Students appreciate the importance of common property resources including land, water, air, biodiversity, forests etc.

CO2: The will appreciate the need for managing such resources as these resources are under various stages of deterioration.

CO3: The students learn methods of managing common property resources for better utilization on a sustainable manner.

CO4: Students will evaluate the role of people's participation in the management of common property resources.

CO5: Students will practice managing such resources in their vicinity and appreciate the importance of such resources for sustainable development

Unit 1

Common Property Resources (CPR) – meaning, definition, types and characteristics of CPR. Present status of various CPR in rural India and need for their management

Unit 2

Traditional Method of Managing CPR, CPR in transitional villages,

Alternative Resource Management Systems-Privatization, Public Management and Collective management.

. Unit 3

Selected examples of management of CPR in dry areas on India- Hiware Bazar, Saurashtra Jal Dhara Trust, Halma etc. - Conservation of water in Gujarat – Case Studies.

Unit 4

Conflicts in CPRM, Conflict resolution cases from local and national background.

References

1. Agarwal, R. M. (2000), 'Possibilities and Limitations to Cooperation in Small Groups: The Case of Group-Owned Wells in Southern India,' World Development 28(8):148l - 1497.

2. Agrawal, A. (2001), 'Common Property Institutions and Sustainable Governance of Resources', World Development Report 29 1649-1672.
3. Agrawal, B. (2000), 'Conceptualizing environmental collective action: why gender matters,' Cambridge Journal of Economics 24: 283-3 10.
   Annual conference the International Association for the Study of Common Property (IASCP), Simon Fraser University, Vancouver, British Columbia, Canada, June 10-14,1998.

4. Arnold, J. E. M. (1990), 'Common Property Management and Sustainable Development in India', Working Paper No. 9, Forestry for Sustainable Development Program, Department of Forest Resources, University of Minnesota, St. Paul, MN.
5. Bank, B. C. and P. Kumar (1999), 'National seminar on 'Common Property Resources and Planned Development in Western India: Challenges and prospects', Indian Journal of Social Work 60(3): 4 19-426.
6. Chopra, K., G. K. Kadekodi and M. N. Murty (1989), 'Peoples participation and common property resources', Economic and Political Weekly 24(51-52): A189-195
7. Chopra, K., G. K. Kadekodi and M. N. Murty (1990), 'Participatory Development: Peopleand common property resources', Sage Publications, New Delhi.

8. Chopra, K., G. K. Kadekodi and M. N. Murty (1990), 'Participatory Development: People and Common Property Resources', Newbury Park, Sage publications, CA.

9. Dadibhavi, R. V. (2000), 'Management of common property resources: a review and some policy issues', Journal of Rural Development 19(2): 199-2 17.
10. n, G. (1998), 'Extensions of the tragedy of the commons', Science 280:
11. Jodha, N. and A. Bhatia (1998), 'Community Management of the Commons: Reempowerment Process and the Gaps', presented at "Crossing Boundaries", the seventh

12. Jodha, N. S. (1990), 'Rural common property resources: Contributions and crisis', Economic and Political Weekly 25(26): A65 — A78.
13. Jodha, N. S. (1992), 'Common property resources, A missing dimension of development strategies,' World Bank Discussion Paper no. 169, The World Bank, Washington D. C.
14. Jodha, N. 5. (1994), 'Management of common property resources in selected dry areas of India', in Kerr, John et al., op cit, pp. 339-361.
15. Jodha, N. S. (1995), 'Common property resources and the dynamics of rural poverty in India's dry regions', Unasylva 46(1): 23-29.
16. Jodha, N. S. (1995), 'Common property resources and the environmental context: Role of biophysical versus social stresses', Economic and Political Weekly 30(51): 3278-3283.
17. Kothari, A., N. Pathak, R. V. Anuradha and B. Taneja (Eds.) (1998), 'Communities and Conservation: Natural Resource Management in South and Central Asia,' UNESC and Sage Publications, New Delhi.
18. Mishra, G. P. and B. K. Bajpai (Eds.) (2001), 'Community Participation in Natural Resource Management', Rawat Publications, Jaipur and New Delhi.
19. Pasha, S. A. (1992), 'CPRs and rural poor: a micro level analysis', Economic and Political Weekly 27(46): 2499-2503.
20. Poffenberger, M. (Ed.) (1996), 'Communities and Forest Management: A Report of the IUCN Working Group on Community Involvement in Forest Management with Recommendations to the Intergovernmental Panel on Forests', Gland, Switzerland, World Conservation Union (IUCN).
21. Shiva, V. (1986), 'Coming Tragedy of the Commons', Economic and Political Weekly 21(15): 613-614.
22. Singh, K. (1994), 'Managing Common Pool Resources: Principles and Case Studies,' Oxford University Press, New Delhi.
23. Singh, K. and V. Ballabh (Eds.) (1996), 'Cooperative Management of Natural Resources', Sage Publications, New Delhi.
24. Srivastava, H. C. and M. K. Chaturvedi (1989), 'Dependency and Common Property Resources of Tribal and Rural Poor,' Commonwealth Publications, New Delhi.

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT MRS(SD) SEMESTER - 5			
Paper No.	:	5.4	
Paper Title	:	**Rural planning and Development**	Credits : **4**

OBJECTIVE:

The Objective of the paper is to make students appreciate the role of Planning in the Rural Economy and familiarize them with Decentralized Planning and the total system of Planning.

Unit: 1 introduction

- Concept and nature of planning
- Concept of rural development
- Indian planning – historical background of Indian planning
- Objectives and Strategy of the Indian planning

Unit: 2 Centralized and decentralized planning

- Concept and need of Centralized and decentralized planning
- Central plans
- Merits and Demerits of decentralized planning
- Decentralized Planning in India
- Levels and Functions of Planning

Unit: 3 district level planning

- Need, Concept and Scope of districtlevel planning
- Components of District Planning
- Process of District Planning

Unit: 4 block level planning

- Need, Concept and Scope of blocklevel planning
- Components of block level Planning
- Process of block level Planning
- Block planning and district plan

Unit: 4 grassroots level planning

- Need, Concept and Scope of grassroots level planning
- Components of grassroots level planning
- The Panchayati Raj System and Village Level Planning
- Importance of micro level planning

References :

- IGNOU Planning for Development 4-EEC-02
- IGNOU Rural Development Management 2-RDD-3
- IGNOU Rural Development Planning 1-MRD-103
- IGNOU Planning, Policies &Programmes 5-MS-3
- Rural Development Principals, Policies and Mangement 3rd Edition by Katarsing -Sage Texts
- Decentralized Multilevel Planning Principals and Practice, Asian & African Experiences - K.V. Sundaram
- Concept Publishing Company, N.Delhi-110059
- ભારતીય અર્થતંત્ર અને આયોજન – કાજલ દાદલ

MRS SD 5.5 Legal Provisions for Sustainability in India

Objectives: The students will appreciate that sustainability in India has a strong backing of legal provisions, not only in the form of Acts and rules but also the Constitution of the country promotes sustainability.

Course Outcome:

CO1: Students will become aware of need of legal provisions and mechanisms for maintaining sustainability.

CO2: Students get informed about Constitutional provision and various Laws in force to maintain sustainability in India.

CO3: Students appreciate the role of India in maintaining sustainability in the World.

CO4: With the help of some case studies students will understand the implementation of laws in India.

Unit: 1

Need for legal provisions, Constitutional provisions- Article 48A, Article 51 A (g), Article 246, Article 253, Article 21, Article 47, Article 19 (1)(g), Article 32 and Article 226 and case laws- MC Mehta vs Union of India, Rural Litigation Kendra, Dehradun Vs. State of Uttar Pradesh, Vellor Citizen Welfare Vs. Union of India

Unit 2

International Conventions related to sustainable development

Unit 3

The Wild Life Protection Act, 1972; The Water (Prevention and control of Pollution) Act, 1974; The Environment (Protection) Act, 1986; The Air (Prevention and Control of Pollution) Act, 1981; The Forest (Conservation) Act, 1980;

Unit 4

The National Green Tribunal Act, 2010; The Biological Diversity Act, 2002;

References:

1. Leelakrishnan P (2021) Environmental Law in India, LexisNexis, Gurgaon, Haryana.s

2. National Institute of Open Schooling, Environment Laws in India. Available on https://www.nios.ac.in/media/documents/SrSec338new/338_Book2_New.pdf
3. Singh Y K (2006) Environmental Science, New Age International (P) Limited Publishers, New Delhi.
4. Diwan Shyam and Armin Rosencranz (2015) Environmental Laws and Policies in India, Oxford University Press,

MRS SD 5.6 Rural Industries and Rural Technologies

Objective: To make the students familiar with the concept of technology and use such technologies for the development of rural areas.

COs:

CO1: The students will become familiar with the concept of technology

CO2: They will appreciate use of various technologies developed for rural up-liftment.

CO3: Students will have hands on training with various appropriate technologies useful in rural areas.

Unit 1

Concept of technology:- Meaning and concept of technology, Technology Policy of India: approach (introduction to past and present policy); Importance of technology in development, merits and demerits of technology. Location theory and Industrial Policy of India, 1991

Unit 2

Concept of Appropriate Technology, Bases of selecting a technology, appropriate technologies for agriculture- drip irrigation system, sprinkler, vermin-compost, vermin-wash, method of composting, organic methods for pest control. Introduction to honey bee culture.

Unit 3

Technologies for renewable energy- solar cooker, solar dryer, solar power and wind power generation. Functioning of Biogas plant

Unit 4

Rural Industries: meaning, concept and need for rural industries. Rural infrastructure and rural industries. Agro processing and agriculture allied industries.

Unit 5

Problems associated with use of rural technologies and way out.

References:

1. CSIR (2020) A compendium of Technologies, CSIR, New Delhi
2. Parikh Mohan (0) Appropriate Rural Technologies, Balgovind Prakashan, Ahemadabad.

એકેડેમિક કાઉન્સિલ તા.25/02/2022
આઇટમ.....2.8.....વિદ્યાપરિષદ.....25

Veer Narmad South Gujarat University,

Surat.

Master of Arts (Economics)

NEW SYLLABUS

Agriculture Economics

Of

Semester 4

Applied from 2021-2022

SEMESTER-IV
EC- 04 (A) AGRICULTURAL ECONOMICS - IV
(Dissertation on Agricultural Economics)

અભ્યાસનો હેતુ :

કૃષિ અર્થશાસ્ત્રનો વિદ્યાર્થી ત્રણ સેમેસ્ટર દરમિયાન કૃષિ અર્થશાસ્ત્ર વિષય સંદર્ભે કૃષિ અર્થશાસ્ત્રના વિવિધ સિદ્ધાંતો અને કૃષિના વિવિધ પ્રશ્નોનો અભ્યાસ કરે છે. વિદ્યાર્થી પોતાના સૈધાંતિક જ્ઞાનને વાસ્તવિક ક્ષેત્રની પરિસ્થિતિ સાથે પ્રયોજિત કરીને કૃષિના વર્તમાન પ્રશ્નો અને તેની તરાહ અને સમસ્યાઓથી વાકેફ બને અને કૃષિના પ્રશ્નો સાચા અર્થમાં સમજી શકે. ઉપરાંત વિદ્યાર્થી વાસ્તવિક આંકડાનો ઉપયોગ કરીને સંશોધનની ગુણવત્તામાં વધારો કરી શકે. વિદ્યાર્થી દ્વારા કરવામાં આવેલા પ્રાથમિક સંશોધનના પરિણામો સમાજ માટે ઉપયોગી બને સ્થાનિક લોકો પ્રસ્તુત સંશોધનથી લાભાન્વિત થાય.

Unit 1: Research Methodology **[25%]**

Types of Data: Primary and Secondary Data, Source of Secondary data in India, Cross sectional data, Time series data, Panel data, Quantitative data and Qualitative data, Scale of Measurement: Ratio scale, Interval scale, Nominal scale, Ordinal scale (Likert scale). Methods for primary data collection: Interview methods (personal interview, long interview, in-depth interview), Observation method (Direct observation, Indirect observation), Group discussion (focus group, peer group) method, Questionnaire method (Steps for preparing questionnaire). Methods for Secondary data collection

Unit 2: Sources of Agricultural Statistics **[25%]**

NSSO - CSO – CMIE – Indiastat – Agricultural Census- Livestock Census- State Agricultural Statistics Authorities (SASAs) - Directorate of Economics and Statistics - Ministry of Agriculture – etc.

Unit 3: Introduction of SPSS **[25%]**

Data file – Data entry – Modification of data – Variable – Coding, Decoding, Editing, Data file -Scale of Measurement – Output file – Functions – Charts and Graphs - Multiple Response Analysis

Unit 4: Statistical Analysis **[25%]**

Frequency Distribution - Descriptive Statistics including measures of central tendency and dispersion - Cross table and Chi-Square Test - t-test – One sample t-test – Independent sample t-test – Paired sample t-test - Correlation and Regression (with SPSS)

Note : Student has to prepare a dissertation on various topic related to Agriculture Economics using primary / secondary data.

Evaluation:
(1) **There is NO Theory Paper**
(2) University Examination: Dissertation + Viva Voce Examination of Total 50 Marks
(3) Internal Evaluation: Total 20 Marks
(4) Total Marks: 70

SEMESTER – IV

EC- 04 (B) AGRICULTURAL ECONOMICS – IV

(Agricultural Issues and Development in Gujarat)

Objectives:

The main objective of the paper is to familiarize students with the issues related to agriculture development in Gujarat.

Unit 1 – Rural Economy of the Gujarat and agricultural labour Issues [25%]

Introduction of Rural Economy - Agro based Industry in Gujarat and it's Issues - Concept, types and Characteristics of Rural Labour - Various Issues Faced by Rural Labour in Gujarat - Labour Force Participation in Rural Economy of Gujarat –Industrial development and its impact on agricultural sector in Gujarat

Unit 2 – Agriculture Performance of Gujarat [25%]

Agricultural Development in Gujarat- Land use Pattern and its issues – land holding Pattern and its issues – land reforms and land distribution issues and polices in Gujarat. Agriculture and allied activities and its issues in Gujarat (Animal Husbandry and Dairying Industries in Gujarat – Fisheries – poultry farm development - Forest and Forest problem etc.)

Unit 3 – Agricultural Production and Horticulture & Floriculture crop Development and its Issues of Gujarat [25%]

Production and productivity of agricultural crops in Gujarat - Cropping pattern –Importance of Horticulture and Floriculture crop - Cultivation practices of fruit and floriculture crops in Gujarat state Harvesting and value addition in fruit crops - Fruit and Floriculture grower's policy of Gujarat state – Problems of horticulture and Floriculture crops in Gujarat.

Unit 4 – Agricultural Inputs and Government Schemes in Gujarat [25%]

Introduction of Agricultural inputs – Importance of Agricultural inputs - Irrigation development Gujarat and its issues – fertilizer and its use in agriculture in Gujarat and its Issues - pesticide and its use in agriculture in Gujarat and its Issues – agriculture market in Gujarat- Various Government Schemes for Agricultural Development in Gujarat state.

References:

(1.) Bardhan, P. (1984) "Land, Labour and Rural Poverty", Oxford University Press, New Delhi.
(2.) Bhalla G.S. Singh Gumail, (201), "Indian Agriculture: Four Decades of Development", Sage Publication, New Delhi.
(3.) Chaddha, G.K. and A.N.Sharma (1997), Growth, Employment and Poverty: Change and Continuity in Rural India" Vikas Publishing House, New Delhi.
(4.) Dantwala, M.L.et. al (1991), "Indian Agricultural Development Since Independence Oxford & IBH, New Delhi.
(5.) Desai S. A. and Vansiya Yogesh N. (2013), "Agriculture Economics-1", New Popular Prakashan, Surat.

SEMESTER – IV

EC- 04 (B) AGRICULTURAL ECONOMICS – IV

(Agricultural Issues and Development in Gujarat)

Objectives:

પ્રસ્તુત પેપરનો મુખ્ય ઉદ્દેશ્ય વિદ્યાર્થી ગુજરાત રાજ્યના કૃષિ વિકાસના વિવિધ મુદ્દાઓથી વિદ્યાર્થી અભિજ્ઞ થાય અને વિવિધ ખ્યાલો વિષે માહિતગાર બને.

એકમ ૧ – ગુજરાતનું ગ્રામીણ અર્થતંત્ર અને ખેતમજૂરના મુદ્દાઓ [૨૫%]

ગ્રામીણ અર્થવ્યવસ્થાનો પરિચય - ગુજરાતમાં કૃષિ આધારિત ઉદ્યોગો અને તેના મુદ્દાઓ – ગ્રામીણ મજૂરની (શ્રમ) વિભાવના, પ્રકારો અને લાક્ષણીકતાઓ - ગુજરાતમાં ગ્રામીણ મજૂર (શ્રમ) દ્વારા સામનો (અનુભવતા) કરવામાં આવતા વિવિધ મુદ્દાઓ - ગુજરાતના ગ્રામીણ અર્થતંત્રમાં શ્રમ દળની ભાગીદારી – ગુજરાતમાં ઔદ્યોગિક વિકાસ અને કૃષિક્ષેત્ર પર તેની અસરો.

એકમ ૨ – ગુજરાતનું કૃષિ પ્રદર્શન (કામગીરી) [૨૫%]

ગુજરાતમાં કૃષિ વિકાસ- જમીનનો વપરાશ અને તેની તરાહ - જમીન ધારણ તરાહ અને તેના મુદ્દાઓ – ગુજરાતમાં જમીન વિતરણના મુદ્દાઓ અને નીતિઓ.- ગુજરાતમાં કૃષિ અને સંલગ્ન પ્રવૃતિઓ અને તેના મુદ્દાઓ (ગુજરાતમાં પશુપાલન અને ડેરી ઉદ્યોગ - મત્સ્યઉદ્યોગ - મરઘાં ખેતી વિકાસ – જંગલો અને જંગલના પ્રશ્નો)

એકમ 3 – ગુજરાતમાં કૃષિ ઉત્પાદન અને બાગાયતી અને ફૂલોના પાક વિકાસ અને તેના મુદ્દા [૨૫%]

ગુજરાતમાં કૃષિ પાકોનું ઉત્પાદન અને ઉત્પાદકતા – પાક તરહ - બાગાયતી અને ફૂલોના પાકનું મહત્વ – ગુજરાત રાજ્યમાં (બાગાયતી) ફળ અને ફૂલોના પાકોની ખેતીની પદ્ધતિઓ - ફળોના અને ફૂલોના પાકમાં લણણી અને મૂલ્યવર્ધન - ગુજરાત રાજ્યની ફળઅને ફૂલોના ઉત્પાદકોની નીતિ – ગુજરાતમાં બાગાયત અને ફૂલોના પાકના પ્રશ્નો.

એકમ 4 – ગુજરાતમાં કૃષિ નીપજકો અને સરકારી યોજનાઓ [૨૫%]

કૃષિ નીપજકોનો પરિચય - કૃષિ નીપજકોનું મહત્વ – ગુજરાતમાં સિંચાઈ વિકાસ અને તેના મુદ્દાઓ - ગુજરાતમાં ખાતર અને તેનો કૃષિમાં ઉપયોગ અને તેના મુદ્દાઓ – ગુજરાતમાં જંતુનાશક દવાઓ અને કૃષિમાં તેનો ઉપયોગ અને તેના મુદ્દાઓ - ગુજરાતમાં કૃષિ બજાર – ગુજરાત રાજ્યમાં કૃષિ વિકાસ માટે વિવિધ સરકારી યોજનાઓ.

Affiliation
05/01/22

એકેડેમિક કાઉન્સિલ તા. 05/02/2022
બાબત.....ઠરાવ નિર્ણય/પરિશિષ્ટ.....29.....

V.C. Nominee
Dr. Ashishkumar Shah
D. 5/1/2022

વી.ન.દ.ગુ.યુનિ. સુરત
આવક નં. 145
તારીખ 5-1-22

વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી

ઉધના – મગદલ્લા રોડ વેસુ, સુરત – ૩૯૫૦૦૭.

કોલેજોએ આપવાની અને સ્થાનિક તપાસ સમિતીએ ચકાસવાની માહિતી માટેનું નિયત પત્રક દરેક ડિગ્રી પ્રોગ્રામ માટે અલગથી આ ફોર્મ ભરવું.

(૧) કોલેજનું નામ અને સરનામું	: ભગવાન મહાવીર કોલેજ ઓફ સાયન્સ એન્ડ ટેક્નોલોજી. સર્વે નં. ૧૪૯, બી/એચ. ઇસ્પેસ, વી.આઇ.પી રોડ, ભરથાણા-વેસુ, સુરત -૩૯૫૦૧૭.
(૨) ડિગ્રી - પ્રોગ્રામનું નામ	: એમ.એસ.સી.(Integrated) બાયોટેક્નોલોજી.
(૩) આ ડિગ્રી પ્રોગ્રામમાં વિકલ્પોના નામ	: Microbiology, Chemistry
(૪) વર્ગદિઠ સંખ્યા (<60, >100)	: બાયોટેક્નોલોજી -60
(૫) વર્ગોની સંખ્યા	: F.Y. ---, S.Y. ---, T.Y. 01, M.Sc-I. 01,M.Sc-II. 01.
(૬) કુલ વિદ્યાર્થીઓની સંખ્યા	:F.Y. --, S.Y. --, T.Y. 35, M.Sc-I. 15,M.Sc-II. 37. Total:87.

(૭) શૈક્ષણિક સ્ટાફ સંબધિત માહિતી : (શા. શિક્ષણના વ્યાખ્યાતા અને ગ્રંથપાલ સહિત)

(A) દરેક વિષય માટે નીચેની માહિતી અલગથી આપવી. (જો વિષય એક થી વધુ ડિગ્રી પ્રોગ્રામમાં હોય તો તેવા દરેક ડિગ્રી પ્રોગ્રામમાં તેને સમાવવો.)

(૮) આચાર્યનું નામ :ડૉ. સુમિતા દાસગુપ્તા

(યુનિવર્સિટી માન્યતાના પત્ર નકલ બિડવી)

(૯) શૈક્ષણિક તથા વહીવટી સ્ટાફને ચૂકવાતા પગાર સંબંધિત માહિતી :

(i) પગાર ધોરણ : પાંચમુ / છઠું પગાર પંચ

(ii) મોંઘવારી ભથ્થું :૧૦૦% (iii) ઘરભાડા ભથ્થું : ૨૦%(iv) (મો. ભ+ઘરભાડા ભથ્થું):૧૨૦%

(v) ગ્રાન્ટ ઇન એઇડ કોલેજોમાં ચૂકવાતાં (DA+ HRA) ની ટકાવારી (%) _____.

(vi) રેશિયો:(DA+ HRA): i.e. (iv) / (v): _____

(૧૦) ૨૫ કે તેથી વધુ કોલેજોએ ભાગ લીધો હોય તેવી યુનિવર્સિટી દ્વારા આયોજિત રમતગમતની હરિફાઇઓમાંભાગ લેવાની માહિતી

(i) કોલેજોએ ભાગ લીધેલ હોઇ તેવી યુનિવર્સિટી આયોજીત રમતગમતની હરિફાઇઓની સંખ્યા (૨૫ કે તેથી વધુ) :૦૦

(ii) આ પ્રોગ્રામમાં વિદ્યાર્થીઓએ ભાગ લીધો હોઇ તેવી હરિફાઇઓની સંખ્યા : ૦૦

(Please provide on a Separate Sheet the list of events in which the college took Part)

(૧૧) ૨૫ કે તેથી વધુ કોલેજોએ ભાગ લીધો હોય તેવી યુવક મહોત્સવની હરિફાઇમાં ભાગ લીધો હોય તેની માહિતી

(i) યુનિવર્સિટી દ્વારા આયોજિત હરિફાઇઓની સંખ્યા : ૦૦

(ii) આ કોલેજે ભાગ લીધો હોય તેવી હરિફાઇની સંખ્યા: ૦૦

(આ કોલેજે ભાગ લીધો તેવી હરિફાઇની યાદી અલગથી બિડવી)

(૧૨) વહીવટી સ્ટાફ સંબંધિત માહિતી (પ્રયોગશાળાના સ્ટાફ સહિત)

	નિમાયેલ/ જરૂરી
(i) હેડ કલાર્કની સંખ્યા	: 00/00
(ii) સિનિયર કલાર્કની સંખ્યા	: 01/01
(iii) જુનિયર કલાર્કની સંખ્યા	: 01/01
(iv) સેવકોની સંખ્યા	: 02/02
(v) અન્ય (લેબ આસીસટન્ટ)	: 02/02
કુલ	: 07/07
ટકાવારી:	100%

(૧૪) બોનસ/પેનલ્ટી પોઇન્ટ સંબંધિત માહિતી :

(i)	સ્ટાફરૂમની સાથે વોશરૂમનીવ્યવસ્થા :	છે / ~~નથી~~	છે
(ii)	સ્ટાફરૂમ / કેમ્પસમાં વાઇફાઇની વ્યવસ્થા :	છે / ~~નથી~~	છે
(iii)	વિદ્યાર્થીનીઓ માટે કોમનરૂમની વ્યવસ્થા :	છે / ~~નથી~~	છે
(iv)	ગ્રંથાલયમાં અલગ વાંચન માટેનો રૂમ :	છે / ~~નથી~~	છે
(v)	રમત ગમતનું મેદાન :	છે / ~~નથી~~	
		છેપ્રયોગશાળામાં જરૂર મુજબના	
	સાધનોની ઉપલબ્ધી :	છે / નથી	છે
	(ઉપલબ્ધ સાધનોની યાદી પ્રયોગશાળા માટે બિડવી)		
(vi)	કોલેજ જે મકાન / કેમપ્સમાં ચાલે છે તેમા શાળા કે યુનિ.સાથે સંલગ્ન નહી હોય તેવી સંસ્થા		
	ચાલે છે કે કેમ?	~~છે~~ / નથી	ના
	(જો જવાબ 'હા'હોય તો પેરા- ૧૫ માં અન્ય અવલોકનોમાં વિગતો આપવી)		
(vii)	સેવાપોઠીમાં નિયમિત નોંધ કરવામાં આવે છે. અને 0.69 (A & B) ની જોગવાઇઓનું પાલન		
	થાય છે.	છે / ~~નથી~~	હા
(viii)	સેમિનાર / કોન્ફરન્સ માટે ડ્યુટી લીવ આપવામાં આવે છે?	છે / ~~નથી~~	હા
(ix)	યુનિવર્સિટીના કામ અર્થે ડ્યુટી લીવ આપવામાં આવે છે?	છે / ~~નથી~~	હા
(x)	મેનરટીનીટી/પેટરનીટી લીવ આપવામાં આવે છે?	છે / ~~નથી~~	હા
(xi)	એનરોલમેન્ટની કાર્યવાહી પૂર્ણ થયેથી વિદ્યાર્થીઓની		
	ઓરીજનલ માર્કશીટ તથા સર્ટીફીકેટ પરત આપવામાં આવે છે.	છે / ~~નથી~~	હા
(xii)	એન્ટી રેગીગ સમિતિ રચાયેલ છે?	છે / ~~નથી~~	હા
(xiii)	જાતીય સતામણી રોકવા માટે સેલની રચના કરવામાં આવી છે.	છે / ~~નથી~~	હા
(xiv)	યુનિવર્સિટીએ નિયત કર્યા સિવાયની અન્ય ફી લેવામાં આવે છે.	~~છે~~ / નથી	ના
(xv)	વિદ્યાર્થીઓને પ્રોસ્પેકટર્સ આપવામાં આવે છે?	છે / ~~નથી~~	હા
(xvi)	પ્રોસ્પેકટર્સની કિમંત જણાવો	₹|.NIL	

શરતો :

(૧) કાયમી આચાર્યની નિમણુંક કરવી.

(૨) યુનિવર્સીટી ઓર્ડીનન્સ 69-A અને 69-B પાલન કરવું.

(૩) આસિસ્ટન્ટ પ્રોફેસર ની નિમણુંક કરવી.

(૪) નવા પુસ્તકોની ખરીદી કરવી.

(૫) ફીઝીકલ ઇન્સ્ટ્રકટરની નિમણુંક કરવી.

નામ :	સહી :
(૧)ડૉ. અશ્વીનભાઈ એસ. પટેલ	
(૨)શ્રી સંજય બી. લાપસીવાલા	
(૩)ડૉ. વિનોદભાઈ પટેલ	
(૪)ડૉ. સૌરભબેન પટેલ	
(૫) ડૉ. રૂસ્તમ મોરિના	
(૬) ડૉ. ગૌરવભાઈ શાહ	
(૭) શ્રી નીશીધ પટેલ	
(૮) ડૉ. ચૌલોમી દેસાઈ	
(૯) ડૉ. કમલેન્દુભાઈ પરિ	
(૧૦) શ્રી પ્રવિણસિંહ રાણા	
(૧૧) શ્રી કનુભાઈ ભરવાડ	
(૧૨) ડૉ. દિવ્યેશ જાદવ	
(૧૩) ડૉ. કમલેશ એચ. જોશી	

(કોઇ પણ ખાનું ખાલી રાખવું નહી)

(આપણી યુનિવર્સિટી આપણું ગૌરવ)

Syl. Fine Arts

Academic Council Dt.05-02-2022
Item No. 42 Encl. 28

BACHELOR OF FINE ARTS

Name of Program	BACHELOR OF FINE ARTS
Abbreviation	BFA
Duration	4 Years
Eligibility Criteria	1) Minimum 45% in 10+2 stream i.e. arts, commerce, science etc. 2) Entrance aptitude test 3) Weightage for admission-70% of entrance test & 30% of std. xii.
Objective of Program	The core objective of the BFA programme is to prepare the students for productive career as Visual Artist and in Visual Arts industry. The program attempts to provide an outstanding environment of critical thinking and research of cultural heritage as well as on contemporary development within the discipline.
Program Outcome	**PO1: Developing Critical and Creative Skills.** Program attempts to train students to develop the lens of perceiving the world around and life through nuanced observational, analytical, critical and creative skills. **PO2: Investing in Individualism** The program invest through personal attention to develop individual students' language in making art concerning their interests, concerns and inquiries through regular conversations and critiques. **PO3: Critical Thinking Development** The program encourages students in regular reading and discussion sessions so as to ingrain criticality towards various artistic forms and functions. **PO4: Interdisciplinary and Multicultural Approach** The program engages the students in interdisciplinary and multicultural approaches to lay emphasis on the primacy of visual literacy in the formation of the engaged individual and their practice.
Program Specific Outcomes	PSO1: Fostering the development of students' creative and intellectual sides along with making them aware of their actions in the process of being and becoming conscientious individuals of society. PSO2: Providing students with a range of theoretical, practical and skill based learning processes to fundamentally equip them for nurturing their personal and professional endeavours. PSO3: Cultivating the importance of approaches, methodologies, research, practice, discourse and theory within their practise as well as concerning the broader spectrum of art, culture, politics and society.
Mapping between POs and PSOs	

	PSO1	PSO2	PSO3
PO1			
PO2			
PO3			
PO4			

Medium of Instruction	English
Program Structure	PREPARATORY (1ST YEAR)

Course Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
101	Drawing(Prepratory)	0	5	5		300	200	500
102	Design in Color(Prepratory)	0	5	5		300	200	500
111	Sculpture(Prepratory)	0	5	5		300	200	500
115	Pottery-Sculpture(Prepratory)	0	2	2		-	200	200
121	Basic graphic Design(Prepratory)	0	5	5		300	200	500
122	Basic computer application(Prepratory)	0	2	2		-	200	200
131	Woodcut/Linocut(Prepratory)	0	2	2				200
151	Story of Art(Prepratory)	2	0	2	3 hours	120	80	200
152	Fundamentals of Visual Arts(Prepratory)	2	0	2	3 hours	120	80	200
171	English(prepratory)	2	0	2	3 hours	120	80	200
	Total	6	26	32		1560	1240	3200

Program Structure	1ST YEAR SPECIALISATION (APPLIED ART, PAINTING, SCULPTURE)

Course Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
201	Drawing (1st yr Pinting)	0	10	10		600	400	1000
202	Composition (1st yr Painting)	0	10	10		600	400	1000
211	Life study (1st Yr Sculpture)	0	9	9		540	360	900
212	Composition(1st yr Sculpture)	0	9	9		540	360	900
215	Pottery and ceramics	0	2	2		120	80	200
216	Direct Metal work(1st yr Sculpture)	0	4	4		-	400	400
221	Graphic Design(1st Yr Applied Arts)	0	10	10		600	400	1000
222	Foundation(1st Yr Applied Arts)	0	10	10		600	400	1000
231	Wood cut(1st yr printmaking)	0	4	4		-	400	400
235	Photography	0	2	2		-	200	200
236	Typography(1st yr Applied Arts)	0	2	2		-	200	200
251	Near Eastern Art	1	0	1	2 hours	60	40	100
252	Art of Far East	1	0	1	2 hours	60	40	100
253	Ancient Indian Art	2	0	2	2 hours	60	40	100
254	Pschyology(1st yr painting & Sculpture)	1	0	1	2 hours	60	40	100
261	Theory of Graphic Design(1st Yr Applied Arts)	1	0	1	2 hours	60	40	100
271	English	1	0	1	3 hours	120	80	200
272	Computer	0	2	2		-	200	200

	Total	7	74	81		4020	4080	8100

Program Structure		2ND YEAR SPECIALISATION (APPLIED ART, PAINTING, SCULPTURE)						
Course Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
301	Drawing (2nd Yr Painting)	0	9	9		540	360	900
302	Compositin(2nd yr painting)	0	9	9		540	360	900
312	Composition(2nd yr Sculpture)	0	9	9		540	360	900
316	Direct Metal work(2nd yr Sculpture)	0	2	2		-	200	200
317	Carving wood/stone (2nd Yr Sculpture)	0	2	2		-	200	200
318	Metal casting(2nd yr sculpture)	0	2	2		-	200	200
321	Graphic Design(2nd Yr Applied Arts)	0	9	9		540	360	900
322	Foundation(2nd Yr Applied Arts)	0	9	9		540	360	900
334	Etching (2nd yr printmaking)	0	6	6		-	600	600
335	Photography	0	4	4		-	400	400
336	Typography(2nd yr Applied Arts)	0	2	2		-	200	200
351	European Art: Greek to Renaissiance	2	0	2	3 hours	120	80	200
353	Indian Art: Medival Period	2	0	2	3 hours	120	80	200
354	Indian Aesthetics	1	0	1	2 hours	60	40	100
361	Theory of Graphic Design(2nd Yr Applied Arts)	1	0	1	2 hours	60	40	100
271	English	1	0	1	3 hours	120	80	200
272	Computer	0	2	2		-	200	200
	Total	7	65	72		3180	3840	7300

Program Structure		3RD YEAR SPECIALISATION (APPLIED ART, PAINTING, SCULPTURE)						
Course Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
401	Drawing(3rd Yr Painting)	0	9	9		540	360	900
402	Composition (3rd Yr Painting)	0	9	9		540	360	900
411	Life study (3rd Yr Sculpture)	0	9	9		540	360	900
412	Composition (3rd Yr Sculpture)	0	9	9		540	360	900
417	Stone Carving (3rd Yr sculpture)	0	3	3		-	300	300
418	Metal casting(3rd yr sculpture)	0	3	3		-	300	300
421	Graphic design(3rd yr Applied Arts)	0	9	9		540	360	900
422	Foundation(3rd Yr Applied Arts)	0	9	9		540	360	900
432	screen printing(3rd Yr printmaking)	0	6	6		-	600	600
435	Photography	0	4	4		-	400	400

436	Typography(3rd Yr Applied Arts)	0	2	2		-	200	200
451	European Art : Mannerisim to Modern	2	0	2	3 hours	120	80	200
453	Indian Art: Mughal to Modern	2	0	2	3 hours	120	80	200
454	Western Aesthetics	1	0	1	2 hours	60	40	100
461	Theory of Graphic Design(3rd Yr Applied Arts)	1	0	1	2 hours	60	40	100
	Total	6	72	78		3600	4200	7800

Course Code	**101**
Course Title	Drawing(Preparatory)
Credit	5
Teaching per Week	5
Effective From	2006-07
Course Objective	Accurately represent perceptions in 2-d format Make informed choices in representation to promote the communication
Course Outcomes	Encourages Visual Analysis and Establish Concentration. Improves Hand-Eye Coordination and
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	Elements of Drawing: line, shape, volume, value, space, texture Principles of Art: Balance, Proportion, Rhythm, Emphasis and Unity Drawing Practices: contemporary, historic Critical Conversation about Drawing study of forms in nature, single objects and group of objects in line, tone and texture. Study of basic geometrical shapes, construction and perspective
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	**102**
Course Title	Design in Color(Preparatory)
Credit	5
Teaching per Week	5
Effective From	2006-07
Course Objective	To develop the ability to draw three Dimensional details Drawing form multiples view of a particular elements with understanding of light and shades, volume, mass, texture, flow, perspective and proportions. Preparation of medium. (Clay preparation)
Course Outcomes	Observation, fundamental study of three dimensions handling with material, equipment's and tools. Self-employ. Clay and paper are the most basic and standard materials for sculpture with totally contradiction aspects of materials and techniques. And first step to learn and understand the idea of sculpture.
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	Study of objects in media like water colour, wash and crayons. Knowledge of primary secondary colour.

Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	111
Course Title	Sculpture(Preparatory)
Credit	5
Teaching per Week	5
Effective From	2006-07
Course Objective	To develop the ability to draw three Dimensional details Drawing form multiples view of a particular elements with understanding of light and shades, volume, mass, texture, flow, perspective and proportions. Preparation of medium. (Clay preparation)
Course Outcomes	Observation, fundamental study of three dimensions handling with material, equipment's and tools. Self-employ. Clay and paper are the most basic and standard materials for sculpture with totally contradiction aspects of materials and techniques. And first step to learn and understand the idea of sculpture
Mapping between COs with PSOs	PSO1 PSO2 PSO3 CO1
Course Content	Clay Modeling: final clay modeling with understanding of light and shades, volume, mass, texture, flow, perspective and proportions. Presentation paper sculpture. Learning the basic elements using idea of form and shapes. Sketching and drawing. (Study and technical drawing.) Introductions and selection of material according drawing and size. Prototypes making of final paper sculpture according to Drawing and Prototypes, enlarging the scale, using required types of paper with different techniques and tools.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	115
Course Title	Pottery-Sculpture(Preparatory)
Credit	2
Teaching per Week	2
Effective From	2006-07
Course Objective	To develop a working knowledge of design concepts, including form, structure, space, surface, colour, proportion, composition and function and to also learn the technical skills, vocabulary, processes and materials related to using clay as an art material for making pottery and sculpture
Course Outcomes	pottery responsible for working on anything that is made of clay and is innovative and creative
Mapping between COs with PSOs	PSO1 PSO2 PSO3 CO1
Course Content	Theory introduction to various clays used in pottery, wheel work-throwing, Turning and surfacing, pinching, mould

Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

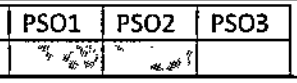
Course Code	121
Course Title	Basic graphic Design(Prepratory)
Credit	5
Teaching per Week	5
Effective From	2006-07
Course Objective	Observation and developing the sense of design- using grids and developing layouts.
Course Outcomes	Understanding the principles of graphic designing and implementing them in all the fields, be it Applied, Painting or Sculpture.
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	Primary elements and forces. Exercises in line and dot. Exercises with basic shapes and texture in relation to space. • Study of letter forms, basic types, study of their formal aspect, proportion, weight, interrelation of negative – positive space
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

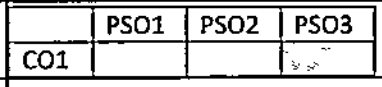
Course Code	131
Course Title	Woodcut/Linocut(Prepratory)
Credit	2
Teaching per Week	2
Effective From	2006-07
Course Objective	Introduction of the technique of Woodcut and Linocut. Marble printing and collagraphs.
Course Outcomes	Understanding the idea of positive and negative space to develop visuals from sketches and drawings. Developing prints to practically understand the technicality of the medium. Experimenting with different woods, their nature and textures over the final print. Experimenting with various objects and surfaces to try monoprints.
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	**152**
Course Title	Fundamentals of Visual Arts(Preparatory)
Credit	2
Teaching per Week	2
Effective From	2006-07
Course Objective	The core objective of this course is to introduce the fundamental elements of visual Arts through
Course Outcomes	Introducing fundamental elements of art through the observation and study of practice enabling to use these fundamentals
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	Study from books, Art works and nature, the elements of visual arts like line, space, form, shape, color.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	**171**
Course Title	English(preparatory)
Credit	2
Teaching per Week	2
Effective From	2006-07
Course Objective	The main objective of this course is to acquaint students with the subtleties and intricacies of English Language
Course Outcomes	As prescribed every year by the Board of Studies in English
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	1) The students would be able to communicate their simple and abstract ideas through language. 2) The students would learn and master the essential concepts and ideas in order to facilitate better creative process. 3) A gain of perspective through vigorous exercises and activities which will come handy in their primary pursuits of being
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	**201**
Course Title	Drawing (1st yr Pinting)
Credit	10
Teaching per Week	10
Effective From	2006-07
Course Objective	The core objective of this course is to introduce and foreground the fundamental elements through developing
Course Outcomes	(a) Introducing fundamental elements of art through the observation and study of tangible form. (b) Studying human anatomy; the head and a group of humans in relation to each other. (c) Employing various mediums (charcoal, oil pastels, pencil, ink etc.) to engage with individual interest of drawing beyond

Mapping between COs with PSOs	
Course Content	(a) Study from objects, animals, nature and full-length human figures. (b) Study of the human head in various media. study of human figure groups (c) Creative drawing with special emphasis on attributes of various drawing mediums.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	202
Course Title	Composition (1st yr Painting)
Credit	10
Teaching per Week	10
Effective From	2006-07
Course Objective	The core objective of this course is to introduce and foreground the fundamental aspects of art-making while parallely developing a lens of how to see, observe, perceive and understand; these being primary facets in the field of Visual Arts practice and discipline.
Course Outcomes	(a) Introducing fundamental elements of art through study of still-life. (b) Studying the anatomy of the human and animal body along with instigating conceptual understanding. (c) Engaging and studying the locality of the city, its functioning and the various aspects that built them.
Mapping between COs with PSOs	
Course Content	(a) Studies of objects and object groups in space. (b) Studies of Human figure and animals (c) Studies of Local scene
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	212
Course Title	Composition(1st yr Sculpture)
Credit	9
Teaching per Week	9
Effective From	2006-07
Course Objective	The core objective of this course is to enable the students to perceive visuals in 3d format and to equip them with skills of clay modelling
Course Outcomes	(CO1) Constructing and developing their creative and imaginative ability from referring to the live studies and playfully exploring the possibilities of the forms and space through 3-dimensional modelling. (CO2) Application of the fundamental learnings and studies of bodies to decipher, construct and develop their own interest and subjective ideas, which are derived from realties around them. To develop their conceptual understanding and methodologies. (CO3) Physically manifesting an idea or thought from ideation and drawing to a complete

	form that involves technical engagement
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td></tr><tr><td>CO3</td><td></td><td></td><td></td></tr></table>
Course Content	a) Compositions based on studies of human figure, animal or bird and environment. (b) Exercises evolving with ideas - sketches - drawings - maquettes. (c) Making of final sculpture and moulding and casting
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	**215**
Course Title	Pottery and ceramics
Credit	2
Teaching per Week	2
Effective From	2006-07
Course Objective	To learn the technical skills, vocabulary, processes and materials related to using clay as an art material.
Course Outcomes	(CO1) Knowledge of contemporary ceramics. (CO2)The ability to successfully manipulate clay through the basic hand building techniques of coil, pinch, and slab. (CO3) The ability to successfully manipulate clay on the potter's wheel. (CO4)The ability to embellish the surface in an expressive and meaningful way using slips and glazes. (CO5) The ability to safely load and unload ceramic objects in gas kilns. (CO6) the ability to discuss, in an articulate, thoughtful manner during class critiques, the meaning, design, and technical processes use
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td></tr><tr><td>CO3</td><td></td><td></td><td></td></tr><tr><td>CO4</td><td></td><td></td><td></td></tr><tr><td>CO5</td><td></td><td></td><td></td></tr><tr><td>CO6</td><td></td><td></td><td></td></tr></table>
Course Content	Design with the help of slabs. Three dimensional form with the help of the forms made on wheel. Plaster piece mould. Preparing different clay bodies for terracotta sculpture and garden pots and methods of biscuit firing. Handbuilding trough Coil and pinch techniques create a symmetrical vessel that you have designed after studying historical examples. Surface: create two contrasting forms using the pinch technique: Both forms will be glazed and fired using the gas kiln. Slab technique: Construct a model out of clay using the following components: cylinder, cone, half sphere, sphere, cube, and rectangle. II. Throwing projects – learning how to throw on the potter's wheel 1) learn the fundamentals of centering and pulling a cylinder. 2) Beginning throwing project: throw a cylinder at least 7" in height from 2 ½# of clay.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	**216**
Course Title	Direct Metal work(1st yr Sculpture)

Credit	4
Teaching per Week	4
Effective From	2006-07
Course Objective	The core objective of this course is to enable the students to perceive visuals in 3d format and to equip them with skills of direct metal casting
Course Outcomes	(CO1) Exercises to decipher, construct and develop their own interest and subjective ideas. To develop their conceptual understanding and methodologies. (CO2) Developing and understanding the relationship of their ideas to the material (medium) in a work by engaging with the limitations and possibilities of various kinds of metals. (CO3) Inculcating basics of material handling and its understanding through the technical stages of processes in regards to various metals. (CO4) Physically manifesting ideas and thoughts into a complete form that involves technical engagement and the problem-solving
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3
CO1			
CO2			
CO3			
CO3			

Course Content	(a) Exercises evolving with ideas - sketches - drawings - maquettes. (b) Selection of material (different types of metal according to its physical, chemical and structural characteristics and availability of material). (c) Introduction to techniques like welding, breezing, fogging, riveting, routine and other joineries possible in particular metal. (c) Making of final sculpture.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	221
Course Title	Graphic Design(1st Yr Applied Arts)
Credit	10
Teaching per Week	10
Effective From	2006-07
Course Objective	The core objective of this course is to introduce students to branding, principles & elements of graphic design. Also, they will learn to understand grids to have better sense of layouts. Add-on students should be able to implement these concepts using software – Adobe PS and AI.
Course Outcomes	This course includes basics of printing press & designing
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3
CO1			

Course Content	Proportion and scales of types of letters. Introduction to typography. Basic types and study of their formal aspects. Interrelation of negative and positive space. Designing symbol, logo, stationery, press layout book cover.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	222

Course Title	Foundation(1st Yr Applied Arts)
Credit	10
Teaching per Week	10
Effective From	2006-07
Course Objective	The core objective of this course is to introduce and foreground the fundamental aspects of sketching and drawing while parallely developing a lens of how to see, observe, perceive and understand; these being primary facets in the field of Visual Arts and its applications.
Course Outcomes	Understanding the fundamental elements of drawing - form, perspective, volumn, light, color, value, brushstroke through study
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3
CO1			

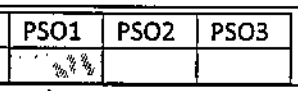
Course Content	Studies of objects and human figures
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

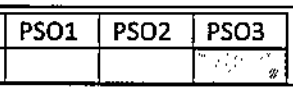
Course Code	231
Course Title	Wood cut(1st yr printmaking)
Credit	4
Teaching per Week	4
Effective From	2006-07
Course Objective	Introduction of the technique of Woodcut and Linocut. Marble printing and collagraphs.
Course Outcomes	Understanding the idea of positive and negative space to develop visuals from sketches and drawings. Developing prints to practically understand the technicality of the medium.
Mapping between COs with PSOs	

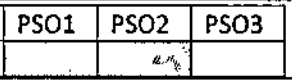
	PSO1	PSO2	PSO3
CO1			

Course Content	Experimenting with different woods, their nature and textures over the final print. Experimenting with various objects and surfaces to try monoprints.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

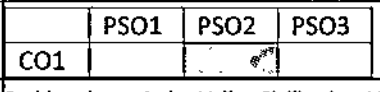
Course Code	236
Course Title	Typography(1st yr Applied Arts)
Credit	2
Teaching per Week	2
Effective From	2006-07
Course Objective	The core objective of this course is to introduce to type anatomy, typography principle, elements and basi
Course Outcomes	Aesthetic of designing sense.

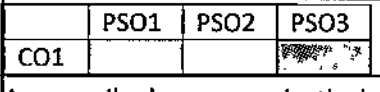
Mapping between COs with PSOs	
Course Content	• Anatomy of typefaces, introduction of serif typefaces, sense-serif typefaces, script typefaces, decorative typefaces, display typeface and how to modified typefaces and how to brake typefaces helps throw basic type anatomy. • Design talkative logo, symbol, voice convert in typeface.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	**251**
Course Title	Near Eastern Art
Credit	1
Teaching per Week	1
Effective From	2006-07
Course Objective	To understand the various aspects of civilization and evolution through various architectural examples.
Course Outcomes	To understand the evolution of art through various other civilizations in a parallel timeline.
Mapping between COs with PSOs	
Course Content	Mesopotamia, Persian, Egyptian.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	**252**
Course Title	Art of Far East
Credit	1
Teaching per Week	1
Effective From	2006-07
Course Objective	To understand the various aspects of Eastern Civilization, linear and comparative understanding of various aspects
Course Outcomes	To understand the evolution of art through various other civilizations in a parallel timeline.
Mapping between COs with PSOs	
Course Content	Chinese Civilization, Korean Civilization, Cambodian Civilization, Japanese Civilization.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment

Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	**253**
Course Title	Ancient Indian Art
Credit	2
Teaching per Week	2
Effective From	2006-07
Course Objective	To understand the concept of civilizations and its various parts. It starts with Indus Valley to the Gupta Dynasty. The aspects of religion (Buddhism/Jainism/Hinduism) and the concept of Indian canons through the concept of various spaces.
Course Outcomes	To understand the evolution of art practices and various material expressions, simultaneously understand iconographical structure
Mapping between COs with PSOs	
Course Content	Prehistoric art, Indus Valley Civilisation, Vedic Age, Mauryan Dynasty, Sunga Dynasty, Kuashana Dynasty, Gupta Dynasty.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	**254**
Course Title	Pschyology(1st yr painting & Sculpture)
Credit	1
Teaching per Week	1
Effective From	2006-07
Course Objective	The objective is to find a co relationship between the functioning of your behavior and its reflection on the arts
Course Outcomes	Psychology in visual art is an interdisciplinary subject enhancing the student's perception, understanding, art characteristics and its productions.
Mapping between COs with PSOs	
Course Content	As prescribed every year by the board of studies in Pschyology
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	**261**
Course Title	Theory of Graphic Design(1st Yr Applied Arts)
Credit	1
Teaching per Week	1
Effective From	2006-07
Course Objective	Designing of letters through basics of typography - dos and don'ts of designing the letters, various typefaces, knowledge of spacing, etc. Designing symbol, logo, stationery, press layout, book/cover layouts using grids. Also, students will learn the basics of color theory.
Course Outcomes	Understanding of design (layout, typeface & colour)
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	• General background of principals of advertising primary methods of advertising, changing conditions of economy industrial Revolution and its impact. • New media for advertising, technical differences of media for advertising. • The persuasion process, principle of design their manifestations in advertising layout potential qualities of advertising.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	**301**
Course Title	Drawing (2nd Yr Painting)
Credit	9
Teaching per Week	9
Effective From	2006-07
Course Objective	The core objective of this course is to develop the students' individuality by means of skill sets of perceiving and understanding drawing.
Course Outcomes	(CO1) Apart from the study of human form they are encouraged to pay attention to their thoughts which might be reflected in their drawing. (CO2) Closely studying the human and animal form while understanding their relation to the space they are in. (CO3) Exploring the possibilities and limitations of various conventional as well as non-conventional mediums. (CO4) Foregrounding individual understanding of drawing to anchor upon one's interest and enquiries in relation to mediums
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td></tr><tr><td>CO3</td><td></td><td></td><td></td></tr><tr><td>CO4</td><td></td><td></td><td></td></tr></table>

Course Content	1. (a) Study of the structure of the human body and its articulation. (b) Studies of animals, Studies of human figure. 2. Creative and Design aspects of drawing with special emphasis on (a) Attributes of drawing mediums (b) Drawing as a medium of personal expression.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, Internal examination, etc. 50% External University examination

Course Code	302
Course Title	Composition(2nd yr painting)
Credit	9
Teaching per Week	9
Effective From	2006-07
Course Objective	The core objective of this course is to develop the students' individuality by means of skill sets that will unfold their subjective possibilities, interest, concerns through the visual language and practice of unfolding the self and seeing the self in relation to the life(world) around.
Course Outcomes	(CO1) To enhance their acquired fundamental understanding in context to build compositions that focus on individual language and interest. (CO2) Moving beyond the physicality of places and venturing into the individual perspective and idea of space. (CO3) While exploring the locality of the city, students are urged to incorporate alternative ways of art-making (traditional and
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3
CO1			
CO2			
CO3			

Course Content	(a) Composition based on still life, interior and landscapes. (b) Composition exercises to understand the use of space (c) Composition from preparatory studies of the local scene.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, Internal examination, etc. 50% External University examination

Course Code	312
Course Title	Composition(2nd yr Sculpture)
Credit	9
Teaching per Week	9
Effective From	2006-07

Course Objective	The core objective of this course is to enable the students to perceive visuals in 3d format to understand the evolution of sculpture tradition in history and to equip them with necessary skills
Course Outcomes	(CO1) Round compositions made from studies of human figures and natural objects and things to activate their ideating capacity and understanding of form in relation to space. (CO2) Exercises with emphasis on creative thinking and developing compositions with their ideas and thoughts in sculptural form through the entire process from sketching, drawing and making maquettes. (CO3) Physically manifesting ideas and thoughts into a complete form that involves technical engagement and the problem-solving me
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 CO2 CO3
Course Content	(a) Round Composition Based on (i) Human figure, (ii) Natural surroundings. (b) Evolving with ideas - sketches - drawings - maquettes. (c) Making of final sculpture with moulding and casting
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	316
Course Title	Direct Metal work(2nd yr Sculpture)
Credit	2
Teaching per Week	2
Effective From	2006-07
Course Objective	The core objective of this course is to enable the students to perceive visuals in 3d format to understand the evolution of sculpture tradition in history and to equip them with necessary skills of direct metal casting
Course Outcomes	(CO1) Introducing the fundamental theoretical aspects of direct metal sculpture and its techniques to build knowledge about various basic materials, their nature and methods of usage. (CO2) Bring their ideas and concepts into sculptural forms by inculcating basics of material handling - Steel, Iron, Brass, Bronze, Copper
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 CO2
Course Content	(a) Introduction of Direct Metal Sculpture techniques and theory. (b) 'Arc-Welding' based, 'Soldering' based , 'Riveting' and 'Repousse' methods in different metals such as Steel, Iron, Brass, Bronze,

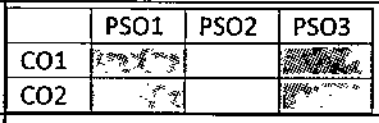
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

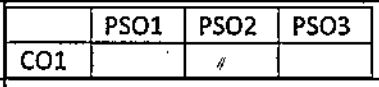
Course Code	317
Course Title	Carving wood/stone (2nd Yr Sculpture)
Credit	2
Teaching per Week	2
Effective From	2006-07
Course Objective	The core objective of this course is to enable the students to perceive visuals in 3d format to understand the evolution of sculpture tradition in history and to equip them with necessary skills of stone/wood carving
Course Outcomes	(CO1) Introducing the fundamental theoretical aspects of Stone / Wood Carving sculptures and its techniques to build knowledge about various basic materials, their nature and methods of usage. (CO2) Developing compositional forms that would involve their individual interest through carving techniques using hand and power tools. Learning basics and exploring different stone and wood - their individual handling and materiality through cutting, chiseling, grinding and surface finishes'
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3
CO1			
CO2			

Course Content	(a) Introduction of Stone/Wood Carving Sculpture techniques and theory. (b) 'Nature of Material Stone/Wood,transportation, cutting, chiseling, grinding and surface finishes' based method in different
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	318
Course Title	Metal casting(2nd yr sculpture)
Credit	2
Teaching per Week	2
Effective From	2006-07
Course Objective	The core objective of this course is to develop the students' individuality by means of skill sets of mediums and techniques that will unfold their subjective possibilities, interest, concerns through the visual language and practice of unfolding the self.

Course Outcomes	(CO1) Introducing the fundamental theoretical aspects of metal casting and its techniques to build knowledge about metal melting furnaces, various basic materials, their nature and functioning. (CO2) Making final sculptures of brass, bronze, copper or aluminum, etc. through 'Lost Wax' and 'Sand' based casting processes with the help of De-Waxing Kiln and Metal Melting furnace . This will aid them in accomplishing their ideas to its final form along with the Patination process.
Mapping between COs with PSOs	
Course Content	a) Introduction of Metal casting techniques and theory. (b) 'Lost Wax' based and 'Sand' based casting in different metals such as Brass, Bronze, Copper, Aluminium etc.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	321
Course Title	Graphic Design(2nd Yr Applied Arts)
Credit	9
Teaching per Week	9
Effective From	2006-07
Course Objective	This course will provide in-depth knowledge of media, medium and advertising (basically print advertisements).Add-on students should be able to implement these concepts using software – Adobe AE. Students would be aware about the modern advertising and learning through real-life use-cases.
Course Outcomes	Depth print advertising that able them to work in advertising agency.
Mapping between COs with PSOs	
Course Content	• Designing for major media. Press advertisements, Magazine advertisements. • Poster, Showcard, folder, comprehensives and execution of final art work of approved material.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	322
Course Title	Foundation(2nd Yr Applied Arts)
Credit	9

Teaching per Week	9
Effective From	2006-07
Course Objective	The core objective of this course is to introduce and foreground the fundamental aspects of sketching an
Course Outcomes	To nuance their acquired fundamental understanding through drawing and observational skills of human anatomy to explore materials, process and techniques. engaging in dynamic postures and movement of human figures to delve into the capturing of the body in motion and their structure. Doing hand drawings as well as digital rendering of the bodies.
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	Exercises to study human anatomy - hand and digital drawing
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	334
Course Title	Etching (2nd yr printmaking)
Credit	6
Teaching per Week	6
Effective From	2006-07
Course Objective	The core objective of this course is to enable the students to perceive and to understand the evolution of printmaking tradition in history and to equip them with necessary skills
Course Outcomes	Understanding the process of etching through visual experimenting of lines and composition. Introduction to Aquatint, it's technicality and developing compositions. Experimenting the possibilities and limitations of the medium in the making of drawings over the metal plate as well as while printing them.
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	Introduction of the technique of Etching and Aquatint.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	335

Course Title	Photography
Credit	4
Teaching per Week	4
Effective From	2006-07
Course Objective	Lighting step up with useful when working with models. Model photography working with lighting setup, street photography comfortable photographic strangers in public and product photography with proper concept, composition, light and reflection Add-on also with final output with the help of ps and Lightroom They been capable of working in production house, advertising field, fashion photography etc.
Course Outcomes	street photography , product photography
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	Introduction to creative Photography. Developing techniques, enlarging, dodging and cropping, reductions, intensification and
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	336
Course Title	Typography(2nd yr Applied Arts)
Credit	2
Teaching per Week	2
Effective From	2006-07
Course Objective	This course will provide in-depth knowledge of different typography (modern typography, traditional typography, calligraphy, display) explore different media and medium, voice convert in expressive typeface. Add-on students should be able to Implement these concepts using software – Adobe AE.
Course Outcomes	depth knowledge of type foundry
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	• Designing for major media. Press advertisements, Magazine advertisements, newspaper advertising, and poster
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	351
Course Title	European Art: Greek to Renaissiance
Credit	2
Teaching per Week	2
Effective From	2006-07
Course Objective	To understand the concept of Western Art practices and its canons. This subject brings classical notion of analysing art and architecture. Simultaneously, it brings hierarchy of art practices and showcases that time period's political, religious and cultural changes.
Course Outcomes	The subject brings western view of art practices and their principles. Simultaneously, it has had an impact on world art history.
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	Mion Civilization, Mycenaean Civilization, Early Greek Civilization, Early Roman Civilization, Early Christian and Byzantine Art and A
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	353
Course Title	Indian Art: Medival Period
Credit	2
Teaching per Week	2
Effective From	2006-07
Course Objective	To understand the concept of rock-cut architecture and built temple architecture.
Course Outcomes	To understand the evolution of art practices and various iconography structures of Hindu gods and goddesses.
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	Chola Dynasty, Pallava Dynasty, Rashtrakuta Dynasty, Satavahana Dynasty, Chandel Dynasty, Gujarat Pratihara Dynasty.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	354
Course Title	Indian Aesthetics
Credit	1
Teaching per Week	1
Effective From	2006-07
Course Objective	The course will propose the interrelationship between various Indian Art practices.
Course Outcomes	To understand the evolution of art practices and various iconography structures of Hindu gods and goddesses
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	Concept of Beauty, Inter-relationship of Indian Arts,,Introduction to Bharat Natyashastra, Shadang
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

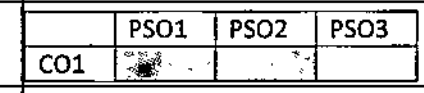
Course Code	361
Course Title	Theory of Graphic Design(2nd Yr Applied Arts)
Credit	1
Teaching per Week	1
Effective From	2006-07
Course Objective	It also includes in-depth understanding of the modern advertising including its structure, various departments of this field and their functions. It also includes appeals in advertising and their application while designing campaign.
Course Outcomes	This course will familiarize students with history of typography and its evolution
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	• Factors which contributed to the development of modern advertising, structure of advertising agency, functions of different departments of advertising. • Advertising appeal, primary and secondary appeals, use of appeals in campaign planning, campaign design procedure. • Advertising for social welfare.

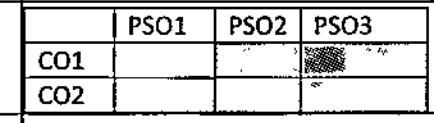
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	401
Course Title	Drawing(3rd Yr Painting)
Credit	9
Teaching per Week	9
Effective From	2006-07
Course Objective	The core objective of this course is to develop individual expression through formalistic and critical engagement to develop their artistic language, practice and research. Being informed of one's thoughts in relation to the personal, philosophical, political, social and cultural aspects.
Course Outcomes	(CO1) The various studies of the living entities (human and animal) are brought together in the form of compositions that reflect individual interests and perspectives. (CO2) Extending the act of drawing as means of personal expression that aid in bringing their inquiry and philosophical concerns into visual language irrespective of any medium
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 | | | CO2 | | |
Course Content	1. Study from life : (a) Human figures in various backgrounds (b) In action (c) Study of animals (d) Making of finished drawing from scribbles 2. Drawing as a medium of personal creative expression
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	402
Course Title	Composition (3rd Yr Painting)
Credit	9
Teaching per Week	9
Effective From	2006-07
Course Objective	The core objective of this course is to develop individual expression through formalistic and critical engagement to develop their artistic language, practice and research. Being informed of one's thoughts in relation to the personal, philosophical, political, social and cultural aspects.
Course Outcomes	(CO1) Deconstructing the compositional aspects (achievements and problems) in their work through critical analysis in relation to their concerned contexts. Encouraging discursive attitude through discussion and presentation. (CO2) Developing an analytical lens towards the real world and its functioning. Constructing a self-sufficient and critical individuality to build their artistic practice and research in the field of Visual Arts
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 | | | CO2 | | |
Course Content	(a) Identification of Compositional problems of each type of Painting. (b) Developing personal expression
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment

Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	411
Course Title	Life study (3rd Yr Sculpture)
Credit	9
Teaching per Week	9
Effective From	2006-07
Course Objective	The core objective of this course is to enable the students to perceive visuals in 3d format to understand the evolution of study from life and to equip them with necessary skills
Course Outcomes	Studying the form to enhance observational and constructional skills in 2 and 3 dimensionality with emphasis on the subjectivity of the subject of study (human/animal). Along with perceptual skills, experimenting with other materials and techniques to add meaning to the sculptural form.
Mapping between COs with PSOs	
Course Content	Sketching, drawing, modelling of living bodies - human or animal or forms from nature.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	412
Course Title	Composition (3rd Yr Sculpture)
Credit	9
Teaching per Week	9
Effective From	2006-07
Course Objective	The core objective of this course is to enable the students to perceive , to understand the evolution of sculpture tradition in history and to equip them with necessary skills to make their own language
Course Outcomes	(CO1) Developing compositions made from studies of human figures, animals, natural objects and things to encourage their ideating capacity and understanding of form and its character. (CO2) Exercises with emphasis on developing compositions with their ideas and thoughts in sculptural form by understanding space and exploring materials- the site-specificity and material politics in sculpture and installation.
Mapping between COs with PSOs	
Course Content	(a) Composition based on studies of human / animal / bird figures and environment. (b) Compositional exercises to understand the use of real space, material. (c) Sketches for low, medium and high relief composition in relation to architectural spaces, enlargement of the composition to the suitable material sometimes it would be based on nature.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	417
Course Title	Stone Carving (3rd Yr sculpture)
Credit	3
Teaching per Week	3
Effective From	2006-07
Course Objective	The core objective of this course is to enable the students to perceive visuals in 3d format to understand the evolution of sculpture tradition in history and to equip them with necessary skills of stone carving
Course Outcomes	Introducing the fundamental theoretical aspects of sculpture and its techniques to build knowledge about various basic materials, their nature and methods of usage.
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	Introduction of stone carving techniques and theory.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	418
Course Title	Metal casting(3rd yr sculpture)
Credit	3
Teaching per Week	3
Effective From	2006-07
Course Objective	The core objective of this course is to enable the students to perceive visuals in 3d format to understand the evolution of sculpture tradition in history and to equip them with necessary skills of advance metal casting
Course Outcomes	(CO1) Introducing the fundamental theoretical aspects of metal casting and its techniques to build knowledge about metal melting furnaces, various basic materials, their nature and functioning. (CO2) Making final sculptures of brass, bronze, copper or aluminum, etc. through 'Lost Wax' and 'Sand' based casting processes with the help of De-Waxing Kiln and Metal Melting furnace . This will aid them in accomplishing their ideas to its final form along with the Patination process.
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td></tr></table>
Course Content	(a) Introduction of Metal casting techniques and theory. (b) 'Lost Wax' based and 'Sand' based casting in different metals such as Brass, Bronze, Copper, Aluminium etc.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	421
Course Title	Graphic design(3rd yr Applied Arts)
Credit	9
Teaching per Week	9

Effective From	2006-07
Course Objective	Students would be able to create two types of advertisement – print and social ads. Along with this, the course also covers TVC and radio advertisements. Students will be able to relate to industry standards and processing. The course will include a case study to understand various aspects of space in a campaign. Further, students will be doing a space-branding of the same.
Course Outcomes	Social campaign, product campaign, 360 campaign movie poster design, game design
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	• Complete execution of design project for a theme in consumer advertising promotion campaign. • Non-product advertising, social or cultural communication themes incorporating relevant media. Execution of final art work of approved material.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	422
Course Title	Foundation(3rd Yr Applied Arts)
Credit	9
Teaching per Week	9
Effective From	2006-07
Course Objective	The core objective of this course is to introduce and develop individual style of rendering characters, stories, concepts and designs that will build the students aesthetic and design sensibility. fundamental aspects of sketching and drawing while parallely developing a lens of how to see, observe, perceive and understand; these being primary facets in the field of Visual Arts and its applications.
Course Outcomes	Exploring the vast possibility of drawing and developing their individual styles of illustrating and designing. Exercises for building peculiar characters of abstract ideas, emotion, gestures. This will assist in the making of story-boards, illustrations and designing. Practicing hand skills along with digital drawing.
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	Exercise to build the character of abstract ideas and thoughts through drawing.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	432
Course Title	screen printing(3rd Yr printmaking)
Credit	6
Teaching per Week	6
Effective From	2006-07
Course Objective	
Course Outcomes	Understanding the basics of screen printing in multiple colors. Exercise to develop layered composition to test the technical aspects and then work on their individual visual language.

Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	Introduction of the technique of Screen Printing
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	435
Course Title	Photography
Credit	4
Teaching per Week	4
Effective From	2006-07
Course Objective	The basics of working in a studio with a flash, final outcome and also come up with scenic design in creative advertising photography as product photography and potrait photography, conceptual photography by directing angle According to storyboarding. They been capable of working in production house, advertising field, fashion photography etc.
Course Outcomes	They been able to understand light and shadows in depth and understanding more of composition with textures and shapes related to particular concept.
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	Developing chemicals and fine grain developers, copying processes: Continuous, line, direct and indirect. Photographs and outdoor photography. Creative photography and darkroom practice.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	436
Course Title	Typography(3rd Yr Applied Arts)
Credit	2
Teaching per Week	2
Effective From	2006-07
Course Objective	Students would be able to create "new typeface", and used in print and digital advertising with brands and produced, and create space value with the different typefaces, typestyle, with the media, Materials, and subjects like Game-design, finding typography with helps photography, taking impression mural, block print, graffiti, etc...
Course Outcomes	space, graffiti, modern & traditional typography, calligraphy, redesign & design typeface
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>

Course Content	• Complete execution of design project for a theme in V.N.S.G.U. campus space design, game design, finding typeface. • Create new theme based typeface
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	451
Course Title	European Art : Mannerisim to Modern
Credit	2
Teaching per Week	2
Effective From	2006-07
Course Objective	This course proposes to understand the hierarchical difference and stylistic approaches in European Art practices. in this course how revivalism to the modern and postmodern approach came into visual culture.
Course Outcomes	This course will give them a perspective of understanding critical ways of analysing visual culture and through art the aspect of various ways of seeing which will reflect in their individual art practise and research.
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 | | |
Course Content	Mannerism, Baroque, Rococo, Neoclassicism, Realism, Romanticism, Impressionism, Art Nouveau, Bauhaus, Post-Impressionism, Fauvism, Cubism, Surrealism, Dadaism, Pop Art, Op Art, Abstract Expressionism, Futurism, Suprematism, Constructivism, Mexican Muralist, Feminist Art, Earth Art.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	453
Course Title	Indian Art: Mughal to Modern
Credit	2
Teaching per Week	2
Effective From	2006-07
Course Objective	This course proposes to look at art from historiographically and various explorations and different dimensions of aesthetics. Simultaneously, the impacts of various influences in Indian Art practices. Here, how Indian Art practices stands in global culture and makes changes.
Course Outcomes	To understand the concept of modern and postmodern through visual culture of the 19th and 20th century. In this course, students
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 | | |
Course Content	Mughal Dynasty, Colonial Period, Swadeshi Art Movement, Raja Ravi Verma and his followers, Progressive Artist Group (Calcutta and Bombay), Young Turk, Group 1890, Baroda Narratives, Chola Mandalam, Modern Sculptures, Modern Printmaking.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	454

Course Title	Western Aesthetics
Credit	1
Teaching per Week	1
Effective From	2006-07
Course Objective	This course proposes the philosophical way of pursuing art and aesthetic within it. Through western scholars they will
Course Outcomes	This course will build a perspective of critical judgement in visual art. Simultaneously, the various notions of understanding aesth
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	Plato, Aristotle, Leonardo Da Vinci, Michelangelo, Vasari, Kant, Hegel, Karl Marx.
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Course Code	461
Course Title	Theory of Graphic Design(3rd Yr Applied Arts)
Credit	1
Teaching per Week	1
Effective From	2006-07
Course Objective	Students will become capable of studying the market and analyzing various aspects like consumer profile, market segmentations, market analysis, buyer persona, etc. Students will learn Content Writing and their applications in TVC, radio, social ads, print ads, etc. This course includes poster design developments following design approaches, media potentials, influence of trends.
Course Outcomes	market analysis, consumer understanding.
Mapping between COs with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>CO1</td><td></td><td></td><td></td></tr></table>
Course Content	• Advertising and related activities, objectives of advertising, market analysis, product analysis, and consumer profile. • Motivational research, copy platform, type of copy, visualization. • Design approach, poster design development, influences of art trends and trends in design. Reproduction process, media
Teaching Methodology	Classwork, Discussion, Self-Study, Seminars and/or Assignment
Evaluation Method	20% class attendance, 30% participation, continuous evaluation, internal examination, etc. 50% External University examination

Master of Computer Application

Program Outcome(PO) :

PO1 : Fundamental Knowledge Enrichment

Program trains students with the core computer science and Information Technology (IT) knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development.

PO2 : Critical Thinking Development

The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem.

PO3 : Advanced Emerging Technology Awareness

The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry.

PO4 : Advanced Tools Usage

The program teaches the students to apply the advanced tools to solve real world problems.

PO5 : Nurturing Project Planning and Management Capabilities

The program trains students for designing and conceptualizing the software architecture, planning and managing the product development process of complex and live software projects. It also makes students understand the decision making for selection of an appropriate project management capabilities.

PO6 : Real World Problem / Project Development

Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready.

PO7 : Team Work and Leadership Development

Trains students to work in a team and also to take leadership of the of the project management team.

Program Specific Outcome(PSO) :

PSO1 : Develop and strengthen the fundamental core concepts that are required to solve complex problems

PSO2 : Develop the professional and entrepreneurship skills that needs independent logical and analytical thinking, teamwork and leadership

PSO3 : Nurture the students to investigate for the design and development of a workable solution for a real world problem

PSO4 : Develop students for self-learning and practicing challenging problem solution

PSO5 : Train students to apply managerial skills to develop business applications.

PSO6 : Train students to use recent computer science and application domain specific knowledge

PSO7 : Train students to take-up the real world challenges to develop workable solution to a domain specific problem

PSO8 : Inculcate the passion for continuous learning and doing research for making a successful professional career

Mapping between POs and PSOs :

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
PO1								
PO2								
PO3								
PO4								
PO5								
PO6								
PO7								

Post Graduate Diploma in Computer Application (PGDCA)

Program Outcome(PO) :

PO1 : Fundamental Knowledge Enrichment

Program trains students with the core computer science and Information Technology (IT) knowledge domains. It also makes students capable of using core concepts in the conceptualization of domain specific application development.

PO2 : Critical Thinking Development

The program develops the skills of critical thinking, problem solving, evaluative learning of various techniques, and understanding the essence of the problem.

PO3 : Advanced Emerging Technology Awareness

The program trains students with the latest technologies that is being used in the industry. The continuous syllabi review adds value to the program for the outgoing students and make them ready to face challenging demands of the industry.

PO4 : Advanced Tools Usage

The program teaches the students to apply the advanced tools to solve real world problems.

PO5 : Nurturing Project Planning and Management Capabilities

The program trains students for designing and conceptualizing the software architecture, planning and managing the product development process of complex and live software projects. It also makes students understand the decision making for selection of an appropriate project management capabilities.

PO6 : Real World Problem / Project Development

Real world project provides the candidates exposure to work in the challenging and demanding environment of the industry. The project development training makes students employable and industry ready.

PO7 : Team Work and Leadership Development

Trains students to work in a team and also to take leadership of the of the project management team.

Program Specific Outcome(PSO) :

PSO1 : Develop and strengthen the fundamental core concepts that are required to solve practical problems

PSO2 : Develop the professional skills that needs independent logical and analytical thinking, teamwork and leadership

PSO3 : Nurture the students to investigate for the design and development of a workable solution for real-world desktop based applications.

PSO4 : Train students for self-learning and performing challenging problem solution

PSO5 : Train students to use recent desktop application and web designing tools

PSO6 : Inculcate the passion for continuous learning for making a successful professional career

Mapping between POs and PSOs :

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
PO1						
PO2						
PO3						
PO4						
PO5						
PO6						
PO7						

Ph.D Coursework

Program Outcome(PO) :

PO1 : Fundamental Knowledge Enrichment

Program trains students with the core computer science and Information Technology (IT) knowledge domains. It also makes research scholars capable of using core concepts in the conceptualization of domain-specific research.

PO2 : Critical Thinking Development

Critically apply theories, methodologies, and knowledge to address fundamental questions in their primary area of study.

PO3 : Knowledge and Intellectual Abilities

The knowledge, intellectual abilities, and techniques to carry out excellent research.

PO4 : Advanced Tools Usage

The program teaches the researchers to apply the advanced tools to solve research problems.

PO5 : Research governance and organization

The knowledge of the standards, requirements and professional conduct that are needed for the effective management of research.

PO6 : Undertake Research Projects

Develop skills to lead research projects within specified limits and participate constructively in more complex interdisciplinary research projects.

PO7 : General Competence

Train researchers to conduct their research in accordance with recognized ethical standards for research.

Program Specific Outcome(PSO) :

PSO1 : Develop and strengthen the fundamental core concepts that are required to solve research problems.

PSO2 : Develop skills that needs independent logical and analytical thinking to solve research problems.

PSO3 : Nurture the researchers to investigate for the design and development of a workable solution for a research problem.

PSO4 : Train researchers for self-learning and performing challenging problem solution in their research area.

PSO5 : Train researchers to use recent computer science and application domain specific knowledge in their research problem.

PSO6 : Train researchers to take-up the real-world challenges to develop workable solution to a domain specific research problem.

PSO7 : Inculcate the passion for continuous learning and doing research for making a successful professional career.

Mapping between POs and PSOs :

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
PO1							
PO2							
PO3							
PO4							
PO5							
PO6							
PO7							

Master of Computer Application (2 Years Programme)

MCA 1st Semester

Course: 101: Relational Database Management System

Course Outcome	CO1: Students will be able to understand and evaluate the role of database management systems in IT applications within an organization. CO2: Students will be able to normalise any real-life database and hence they will be able to design and implement properly structured databases of real-world applications. CO3: Students will be able to write queries using Structured Query Language (SQL) and programs using PL/SQL. CO4: Students will understand how Oracle Database works and the importance of various components of Oracle Database. CO5: Students will understand administration and security enforcement of Oracle Database. This will help them in pursuing higher studies and career in Database Administration.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

Course: 102: Object Oriented Programming Methodology

Course Outcome	CO1- Articulate the principles of Object Oriented Problem solving and programming. CO-2-To demonstrate the differences between traditional imperative design and object Oriented Design CO-3-Outline the essential features and elements of C++ programming language. CO-4- To grasp and apply the concepts of class, method, constructor, abstraction, inheritance and Static Polymorphism. CO-5- To understand and apply Dynamic Polymorphism in real world applications. CO-6- To implement Genericity through the usage of Templates. Mapping between Cos and PSOs

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 103: Cloud Computing

Course Outcome	CO1 : Explain students about the cloud and cloud computing, History & Evolution ,Properties & Characteristics, Advantages & Disadvantages of cloud computing. CO2: Explain students about various service models and deployment models CO3: To provide students a foundation of different cloud service models IAAS,PAAS and SAAS so that they are able to use Cloud Computing Services in real world problem CO4:Understanding the concepts of cloud infrastructure security, data security and storage, Access control and authentication in cloud. CO5: Train students to use AWS and Microsoft Azure CO6: Explain students in brief about BigTable and Firebase
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2		■	■	■	■	■		
CO3		■	■		■	■	■	
CO4	■	■	■			■		
CO5		■	■	■	■	■	■	■
CO6	■	■						

Course: 104: Computer Network

Course Outcome	CO1 : Understand students the fundamental aspects of the computer networks. CO2 : Explain and help students to learn fundamentals network protocols at data link layer, network layer and transport layer. CO3 : Explore students the services offered at each layer of the network protocol stack. CO4 : Train students to implement various error control, flow control, routing algorithms and security algorithms fall under data link layer, network layer and transport layer. CO5 : Explore students the concepts of Security, digital certificate, Public key Infrastructure, and similar security schemes.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■							
CO3	■							
CO4	■	■	■	■				■
CO5		■	■	■		■	■	■

Course: 105: Data Structures and Design and Analysis of Algorithms

Course Outcome	CO1. Explain the futures of various non-primitive data structure and their applications. Train students for algorithms to create, insert, delete and traversing various data structure. CO2. Explain the basics of computational complexity analysis and big O & theta notation that help for fundamental research in algorithm analysis. Students can select the efficient algorithm after analyzing a problem and identifying it's the computing requirements. CO3. Explain insight of basic technique for algorithm such as Divide & Conquer, Greedy method, Backtracking & Branch & Bound CO4. Students will be able to work with various searching and sorting techniques and compare its computational complexity. CO5. Train students with to work with Hash structure, proper hash method and collision detection techniques.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

MCA 2nd Semester

Course: 201: Artificial Intelligence

Course Outcome	CO1 : Explain students the insight of the historical and fundamental aspects the artificial intelligence. CO2 : Train students to represent declarative knowledge in the form of symbolic knowledge through various Knowledge Representation (KR) techniques like First Order Predicate Logic (FOPL), Semantic Network, Conceptual Graphs, Scripts, and Frames. CO3 : Train students to apply various searching algorithms fall under informed and uninformed search methods to solve complex problem of AI domain. CO4 : Explain and train students to deal with the uncertainty that inherently lies within many AI problem. CO5 : Expose the students with the analysis and development process of the knowledge based system development. CO6 : Explain students to utilize the AI problem solving techniques in the advanced AI problem domain like Natural Language Processing (NLP) and Computer Vision (CV)

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■		■					
CO3	■	■	■		■			
CO4		■	■	■		■	■	■
CO5	■		■		■	■		
CO6	■	■		■		■	■	■

Course: 202: Front-End Technologies

Course Outcome	CO1 : Explain students the insight of the fundamental aspects of the static web technology like HTMl , CSS and Javascript CO2 : Train students to represent declarative knowledge in the Boorstrap and it's components , with help of this students can learn static web designing . CO3 : Train students to understand various Javascript based technologies like Jquery , JSON and AJAX. CO4 : Explain and train students to understand basic concepts of Angular JS. CO5 : Expose the students to the various UI technology and real world use of it.. CO6 : After completion of this course, the student will be able to design and develop web pages and Interactive UI for Web Applications

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■		■					
CO3	■	■	■		■			
CO4		■	■	■		■	■	■
CO5	■		■		■	■		
CO6	■	■		■		■	■	■

Course: 203: Programming in .NET

Course Outcome	CO-1 Study .Net Architecture. CO-2- Design and develop console and window based .NET application. CO-3-To learn basic syntax and implement small applications in C# programming language. CO-4-Create and manipulate GUI components in C#. CO-5-Create applications in C# using Object Oriented Properties. CO-6-Design and implement Database connectivity using ADO.Net. CO-7-Identify and resolver problems in C# applications.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								
CO7								

Course: 204: Python Programming Language

Course Outcome	CO1: Students will be able to Write, Test and Debug Python Programs. CO2: Students will be able to Implement Conditionals and Loops, use functions and represent Compound data using Lists, Tuples and Dictionaries in Python programs. CO3: Students will be able to Read and write data from & to files in Python and develop Real World Application. CO4: Students will be able to Design and implement programs to solve real-world problems using Python Programming Language. CO5: Students will learn essential packages like NumPy and Matplotlib, which are necessary for Machine Learning, Data Analytics, and AI.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

Course: 205: iOS Development using Swift

Course Outcome	CO1: Understand the iOS ecosystem and Xcode IDE. Understand the life cycle of iOS application and how to implement it in MVC. Understand Foundation framework in iOS. CO2: Understand the syntax, and semantics of the Swift programming language. Expose the students to CLI applications with Swift. CO3: Understand the UIKit framework in iOS. Understand the usage and working of UI elements in iOS application. Understanding various types of design and their implementation. CO4: Understand data persistence in mobile application. Understand working with files in iOS. Expose students with implementation and usage of database in an iOS application. CO5: Understand the usage and data extraction of sensors in iPhone. Expose the students with Location and MapKit Framework in iOS to build map-based applications. Expose the students with ad-hoc and App Store application deployment.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

Course: 205: Android Application Programming

Course Outcome	CO1 : Train students for installing and using the Android Developer's Toolkit such as SDK Manager, Android Virtual Device, Dalvik Debug Monitor Service (DDMS), Android Debug Bridge (ADB) and make them capable to develop, manage and maintain application(Apps) using Android and publish Apps on Google Play. CO2 : Understand the Android software stack & program building blocks like activities, services and notifications to use them effectively to develop Android applications. CO3 : Explain working with AndroidManifest, xml resources like layout and values and incorporate xml resources with Java code. CO4 : Explain the use of java library for views, controls, menus, dialogs, graphics, media, storage, SQLiteDatabase etc… to make interactive applications. CO5 : Train students to build Android app that access the database & other resources on web server using web services. CO6 : Train students for managing Telephony and Message services. Make them capable of using Location Manager and Google MAP related APIs for App and create the professional applications.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

MCA 3rd Semester (Web Group)

Course: 301: Internet of Things (IoT)

Course Outcome	CO1: Understand the IoT ecosystem and architecture. Understand IoT standards and protocols. Understand the privacy, security and governance issues in IoT applications. Exposing students with IoT botnet and the risks involved with IoT based applications. CO2: Understand the overview and working of the various sensors used in IoT applications. Introduce and Explain various network communication protocols, standards and IoT data Protocols. Understanding the Wireless Sensor Network and how IoT devices communicate with each other. CO3: Understand Micro-Controller and its architecture. Understand the usage of Micro-Controller in IoT applications. Understand how Arduino and NodeMCU interact with sensors and communicate over the network. CO4: Understand Micro-Computer and its architecture. Understand the difference between a Micro-Controller and Micro-Computer. Understand the usage of Micro-Computer in IoT applications. Understand how Raspberry Pi interact with sensors and communicate over the network. CO5:Expose the students with Server-side development in IoT applications. Understand how to develop and deploy applications in Arduino and NodeMCU. Understand how Arduino and NodeMCU communicate among themselves, sensors and the server. Understand how to build a full IoT app by integrating them with mobile applications.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

Course: 301: Machine Learning

Course Outcome	CO1 : Explain to the students the fundamental know how like the types of machine learning algorithms, applications and various required libraries, model selection etc. required to implement machine learning algorithms. CO2 : Train students with can utilize various data wrangling techniques, data cleaning, data transformation, data reduction, data discretization, feature selection, and data visualization CO3 : Train students who can implement supervised learning algorithms utilizing regression and classification algorithm on the real world dataset. CO4 : Train student to have understanding of Artificial Neural Network and its working. Also, to make them capable of implementing ANN for solving real world problems using it. CO5 : Explain to the students to use clustering and association rules as unsupervised learning method to solve complex problems. CO6 : Train students to use machine learning techniques to solve real life complex problems.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 302: Design Patterns

Course Outcome	CO1: Explain students about the various design patterns; their categories, and purpose. CO2: Explain the creational design patterns. CO3: Explain the structural design patterns. CO4: Explain the behavioural design patterns. CO5: Explain some more design patterns used in IT industry currently. CO6: Make students understand the applicability of design patterns practiced by IT companies and how effectively combine these patterns for effective software development.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■	■	■			■	■	
CO3	■	■	■			■	■	
CO4	■	■	■			■	■	
CO5	■		■	■	■	■	■	
CO6							■	■

Course: 303: Advanced Web Technologies

`	CO1 : Explain students the fundamental aspects of .NET framework and ASP.NET. CO2 : Train students to use various tools and controls available in ASP.NET in web application development, how to integrate them and to get them work as a part of one single unit. CO3 : Train students to work with database using ADO.NET through design alternatives and through coding as well, also learn the concept of Language Integrated Query. CO4 : Explain and train students to work with MVC architecture to adopt the requirements of modern days application development. Also learn component based development through web services and APIs. CO5 : Expose the students to the new era of .NET Core to understand the upgrades and developments in .NET architecture. CO6 : Explain students to utilize tools & techniques available in ASP.NET for web based application development and server side component development.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	POS4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■		■					
CO3	■	■	■			■		
CO4		■	■	■	■	■	■	■
CO5		■	■	■	■	■	■	■
CO6	■	■		■	■		■	■

Course: 303: Advanced Java Programming

Course Outcome	CO1 : Explain students the insight of the various aspects the Java web technologies. CO2 : learn to access database through Java programs, using Java Data Base Connectivity (JDBC). CO3 : Create dynamic web pages, using Servlets and JSP, make a reusable software component, using Java Bean. CO4 : Understand the multi-tier architecture of web-based enterprise applications using Enterprise JavaBeans (EJB), develop Session and Entity Beans CO5 : Expose the students with the analysis and development process of the web application development using Java. CO6 : Map Java classes and object associations to relational database tables with JPA

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■		■					
CO3	■	■			■			
CO4		■	■	■		■		
CO5	■		■		■			
CO6	■	■		■		■	■	■

Course: 304: Full Stack Technology

Course Outcome	CO1 : Understand the syntax, and semantics of the JavaScript programming language. Manipulate DOM elements with the help of JavaScript. CO2: Understand the design of single-page applications and how React facilitates their development. Understand advantages and disadvantages of using React. Understand functional components, state components, parent & child components, lifecycle, hooks, routing, and state management in React. CO3: Understanding the working of Node environment and Express Framework. Understand Server-side Web Application development and Server-side routing. CO4: Understanding Mongo as a data store. Understanding common use-cases and architectures of Mongo. Performing database operations using Mongo's query and update languages. CO5 : Expose the students with the combined development process of the full stack application. Understand connecting React and Node. Understand Github and CI/CD. Understand the deployment of full stack application using Netlify / Heroku.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■		■	■		■	■	■
CO2	■		■	■		■	■	■
CO3	■		■	■		■	■	■
CO4	■		■	■		■	■	■
CO5	■	■	■	■	■	■	■	■

Course: 305: Open Source Web Based Programming

Course Outcome	CO1 : Explain students the fundamental as well as Advanced aspects of the Open Source Web based Technology. CO2 : Train students about react JS and difference between React JS and React Native. CO3 : Train students to understand MVC structure and it's benefits. CO4 : Explain and train students to deal with possible problem while developing websites and it's solution. CO5 : Expose the students with the analysis and development process of Websites. CO6 : After studying the course, students will be able to understand how Open source web technology works. They will also be able to create database driven Professional Websites.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■		■					
CO3	■	■	■		■			
CO4		■	■	■		■	■	■
CO5	■		■		■	■		
CO6	■	■		■		■	■	■

MCA 3rd Semester (Database Group)

Course: 301: Internet of Things (IoT)

Course Outcome	CO1: Understand the IoT ecosystem and architecture. Understand IoT standards and protocols. Understand the privacy, security and governance issues in IoT applications. Exposing students with IoT botnet and the risks involved with IoT based applications. CO2: Understand the overview and working of the various sensors used in IoT applications. Introduce and Explain various network communication protocols, standards and IoT data Protocols. Understanding the Wireless Sensor Network and how IoT devices communicate with each other. CO3: Understand Micro-Controller and its architecture. Understand the usage of Micro-Controller in IoT applications. Understand how Arduino and NodeMCU interact with sensors and communicate over the network. CO4: Understand Micro-Computer and its architecture. Understand the difference between a Micro-Controller and Micro-Computer. Understand the usage of Micro-Computer in IoT applications. Understand how Raspberry Pi interact with sensors and communicate over the network. CO5:Expose the students with Server-side development in IoT applications. Understand how to develop and deploy applications in Arduino and NodeMCU. Understand how Arduino and NodeMCU communicate among themselves, sensors and the server. Understand how to build a full IoT app by integrating them with mobile applications.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

Course: 301: Machine Learning

Course Outcome	CO1 : Explain to the students the fundamental know how like the types of machine learning algorithms, applications and various required libraries, model selection etc. required to implement machine learning algorithms. CO2 : Train students with can utilize various data wrangling techniques, data cleaning, data transformation, data reduction, data discretization, feature selection, and data visualization CO3 : Train students who can implement supervised learning algorithms utilizing regression and classification algorithm on the real world dataset. CO4 : Train student to have understanding of Artificial Neural Network and its working. Also, to make them capable of implementing ANN for solving real world problems using it. CO5 : Explain to the students to use clustering and association rules as unsupervised learning method to solve complex problems. CO6 : Train students to use machine learning techniques to solve real life complex problems.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 302: Design Patterns

Course Outcome	CO1: Explain students about the various design patterns; their categories, and purpose. CO2: Explain the creational design patterns. CO3: Explain the structural design patterns. CO4: Explain the behavioural design patterns. CO5: Explain some more design patterns used in IT industry currently. CO6: Make students understand the applicability of design patterns practiced by IT companies and how effectively combine these patterns for effective software development.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 303: ERP Using SAP

Course Outcome	CO1 : Explain students the insight of the fundamental aspects of the ERP and SAP. CO2 : Train students to represent declarative knowledge of Sap Application Server and 3-Tier Architecture. CO3 : Train students to understand concepts of Data Dictionary and data structure in ABAP. CO4 : Explain and train students to understand basic concepts of Modularization Technique, Module pool programing, BDC & LSMW and Selection-Screen programming. CO5 : The course emphasizes on teaching SAP implementation as the whole process of transforming ERP business procedures to organization wide requirements. CO6 : After studying this students will be able to understand how to work with ERP modules. After successful completion, students will be able to develop ERP application using SAP.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 303: NoSQL Databases

Course Outcome	CO1 : Explain students about history, concept , characteristics and types of NoSQL databases CO2: Explain students about the differences between relational databases and NoSQL databases, Advantages and disadvantages of NoSQL databases and application of NoSQL databases CO3: Explain students about fundamentals of MongoDB, MongoDB feature set and Architecture CO4: Train student to create document, collection and databases in MongoDB, use of simple and complex queries to insert, update and view data. CO5: Explain and train student to use MongoDB restful API and applying security CO6: Explain students about Cassandra Architecture, Data modelling in Cassandra and integration of Cassandra with Hadoop CO7: Train student to create and use keyspaces and databases in Cassandra, Also explain and train student about Cassandra administration
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■	■	■					
CO3	■							
CO4		■	■	■	■	■	■	
CO5		■	■	■	■	■	■	■
CO6	■	■	■	■				
CO7		■	■	■	■	■	■	■

Course: 304: Advanced Database Administration

Course Outcome	CO1 : To provide strong foundation in Advanced Database Administration concepts from an industry perspective. CO2 : To have thorough understanding of Oracle Database Management System internal architecture. CO3 : To understand the security aspects and user management. CO4 : To apply and learn various Oracle utilities CO5 : To learn how to practically tune the database to optimize the overall performance. CO6 : To learn and implement Backup and Recovery.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■		■	■	■	■		
CO2	■			■	■		■	
CO3								
CO4			■	■			■	
CO5		■			■	■	■	■
CO6		■			■	■	■	

Course: 305: Data Warehousing & Data Mining

Course Outcome	CO1. Explores Differences between Online Transaction Processing and Online Analytical processing System & describe Multidimensional schemas suitable for data warehousing CO2. Explains Data warehousing architectures and tools for organizing able to voluminous data of online processing systematically in Data warehouse/Data Mart and use those data for making strategic decisions CO3. Explains various data pre-processing methods via data reduction, data cleaning, data integration, data transformation etc… CO4. Trains students to extract knowledge using data mining techniques & to discover interesting patterns from large amounts of data for predictions and classification CO5. Trains students to develop a data mining application for data analysis using various algorithms & tools.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

Course: 305: Big Data

Course Outcome	CO1 : Student should be able to understand concept and the building blocks of Big Data CO2 : Student should be able to articulate the programming aspects of cloud computing (map Reduce etc.) CO3 : Access and Process Data on Distributed File System, and to understand big data with the help of different big data applications CO4 : Student must be able to represent the analytical aspects of Big Data CO5 : Students will have understanding of distributed computing and will have hands-on experience on Hadoop CO6 : Student shall know the recent trends related to Hadoop File System, MapReduce etc.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

MCA 3rd Semester (Network Group)

Course: 301: Internet of Things (IoT)

Course Outcome	CO1: Understand the IoT ecosystem and architecture. Understand IoT standards and protocols. Understand the privacy, security and governance issues in IoT applications. Exposing students with IoT botnet and the risks involved with IoT based applications. CO2: Understand the overview and working of the various sensors used in IoT applications. Introduce and Explain various network communication protocols, standards and IoT data Protocols. Understanding the Wireless Sensor Network and how IoT devices communicate with each other. CO3: Understand Micro-Controller and its architecture. Understand the usage of Micro-Controller in IoT applications. Understand how Arduino and NodeMCU interact with sensors and communicate over the network. CO4: Understand Micro-Computer and its architecture. Understand the difference between a Micro-Controller and Micro-Computer. Understand the usage of Micro-Computer in IoT applications. Understand how Raspberry Pi interact with sensors and communicate over the network. CO5:Expose the students with Server-side development in IoT applications. Understand how to develop and deploy applications in Arduino and NodeMCU. Understand how Arduino and NodeMCU communicate among themselves, sensors and the server. Understand how to build a full IoT app by integrating them with mobile applications.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

Course: 301: Machine Learning

Course Outcome	CO1 : Explain to the students the fundamental know how like the types of machine learning algorithms, applications and various required libraries, model selection etc. required to implement machine learning algorithms. CO2 : Train students with can utilize various data wrangling techniques, data cleaning, data transformation, data reduction, data discretization, feature selection, and data visualization CO3 : Train students who can implement supervised learning algorithms utilizing regression and classification algorithm on the real world dataset. CO4 : Train student to have understanding of Artificial Neural Network and its working. Also, to make them capable of implementing ANN for solving real world problems using it. CO5 : Explain to the students to use clustering and association rules as unsupervised learning method to solve complex problems. CO6 : Train students to use machine learning techniques to solve real life complex problems.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 302: Design Patterns

Course Outcome	CO1: Explain students about the various design patterns; their categories, and purpose. CO2: Explain the creational design patterns. CO3: Explain the structural design patterns. CO4: Explain the behavioural design patterns. CO5: Explain some more design patterns used in IT industry currently. CO6: Make students understand the applicability of design patterns practiced by IT companies and how effectively combine these patterns for effective software development.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■	■	■			■	■	
CO3	■	■	■			■	■	
CO4	■	■	■			■	■	
CO5	■		■	■	■	■	■	
CO6							■	■

Course: 303: Network Essentials and its Security

Course Outcomes	CO1: Explain students familiar about network essentials. Make them familiar with various network devices like repeaters, bridge router, and gateway. CO2: Explain how to administer computer network. Make them understand various wide area network techniques, and explain network security. CO3: To understand cryptography, PKI, and digital signatures. CO4: Familiarize with various security services, and how certification and key management is handled in PKI. CO5: To make students understand various network security applications; covering internet protocol security, web security, email security, network management and its security. CO6: Make students understand access control, authentication schemes, firewalls, and virtual private network. Also to learn intrusion detection, virus and mobile and e-commerce security systems.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■	■		■	■	■	■	
CO3	■	■	■			■	■	■
CO4	■	■	■	■		■	■	■
CO5	■	■	■	■	■			■
CO6							■	■

Course: 304: Network Administration

Course Outcomes	CO1: Understand networking fundamentals and networking using tcp/ip protocol. CO2: Learn network management using dhcp, dns, and nfs. CO3: Learn network management using Linux os; and also remote administration. CO4: Understand administration services, task automation and cron daemon on Linux. CO5: Understand samba service and its configuration CO6: Learn to configure and use system wide logging and network information service
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 305: Wireless Network and Mobile Computing

Course Outcomes	CO1: Make students learn fundamentals of wireless technologies. CO2: Make students learn W-LAN technologies, and explain its implementation. CO3: To understand hardware, its implementation and protocols for wireless network. CO4: Explain MANET, its applications, protocols associated, and routing algorithms. CO5: Learn mobile computing and its architecture. Also learn GSM, GPRS and WAP.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

MCA 3rd Semester (General Group)

Course: 301: Internet of Things (IoT)

Course Outcome	CO1: Understand the IoT ecosystem and architecture. Understand IoT standards and protocols. Understand the privacy, security and governance issues in IoT applications. Exposing students with IoT botnet and the risks involved with IoT based applications. CO2: Understand the overview and working of the various sensors used in IoT applications. Introduce and Explain various network communication protocols, standards and IoT data Protocols. Understanding the Wireless Sensor Network and how IoT devices communicate with each other. CO3: Understand Micro-Controller and its architecture. Understand the usage of Micro-Controller in IoT applications. Understand how Arduino and NodeMCU interact with sensors and communicate over the network. CO4: Understand Micro-Computer and its architecture. Understand the difference between a Micro-Controller and Micro-Computer. Understand the usage of Micro-Computer in IoT applications. Understand how Raspberry Pi interact with sensors and communicate over the network. CO5:Expose the students with Server-side development in IoT applications. Understand how to develop and deploy applications in Arduino and NodeMCU. Understand how Arduino and NodeMCU communicate among themselves, sensors and the server. Understand how to build a full IoT app by integrating them with mobile applications.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

Course: 301: Machine Learning

Course Outcome	CO1 : Explain to the students the fundamental know how like the types of machine learning algorithms, applications and various required libraries, model selection etc. required to implement machine learning algorithms. CO2 : Train students with can utilize various data wrangling techniques, data cleaning, data transformation, data reduction, data discretization, feature selection, and data visualization CO3 : Train students who can implement supervised learning algorithms utilizing regression and classification algorithm on the real world dataset. CO4 : Train student to have understanding of Artificial Neural Network and its working. Also, to make them capable of implementing ANN for solving real world problems using it. CO5 : Explain to the students to use clustering and association rules as unsupervised learning method to solve complex problems. CO6 : Train students to use machine learning techniques to solve real life complex problems.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 302: Design Patterns

Course Outcome	CO1: Explain students about the various design patterns; their categories, and purpose. CO2: Explain the creational design patterns. CO3: Explain the structural design patterns. CO4: Explain the behavioural design patterns. CO5: Explain some more design patterns used in IT industry currently. CO6: Make students understand the applicability of design patterns practiced by IT companies and how effectively combine these patterns for effective software development.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■	■	■			■	■	
CO3	■	■	■			■	■	
CO4	■	■	■			■	■	
CO5	■		■	■	■	■	■	
CO6							■	■

Course: 303: Network Essentials and its Security

Course Outcome	CO1: Explain students familiar about network essentials. Make them familiar with various network devices like repeaters, bridge router, and gateway. CO2: Explain how to administer computer network. Make them understand various wide area network techniques, and explain network security. CO3: To understand cryptography, PKI, and digital signatures. CO4: Familiarize with various security services, and how certification and key management is handled in PKI. CO5: To make students understand various network security applications; covering internet protocol security, web security, email security, network management and its security. CO6: Make students understand access control, authentication schemes, firewalls, and virtual private network. Also to learn intrusion detection, virus and mobile and e-commerce security systems.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■	■		■	■	■	■	
CO3	■	■	■			■	■	■
CO4	■	■	■	■		■	■	■
CO5	■	■	■	■	■			■
CO6							■	■

Course: 304: Advanced Database Administration

Course Outcome	CO1 : To provide strong foundation in Advanced Database Administration concepts from an industry perspective. CO2 : To have thorough understanding of Oracle Database Management System internal architecture. CO3 : To understand the security aspects and user management. CO4 : To apply and learn various Oracle utilities CO5 : To learn how to practically tune the database to optimize the overall performance. CO6 : To learn and implement Backup and Recovery.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 305: Open Source Web Based Programming

Course Outcome	CO1 : Explain students the fundamental as well as Advanced aspects of the Open Source Web based Technology. CO2 : Train students about react JS and difference between React JS and React Native. CO3 : Train students to understand MVC structure and it's benefits. CO4 : Explain and train students to deal with possible problem while developing websites and it's solution. CO5 : Expose the students with the analysis and development process of Websites. CO6 : After studying the course, students will be able to understand how Open source web technology works. They will also be able to create database driven Professional Websites.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Master of Computer Application (3 years Programme)

MCA 1st Semester

Course: 101: Computer Organization and Fundamentals of Operating Systems

Course Outcomes	CO1: Explain students about how computer works and the importance of various components of computers CO2: Understanding the secondary storage devices like HDD, CD, DVD, Bluray and other portable devices CO3: To provide students a foundation of the importance and use of operating systems. CO4: Explain and train students to use GUI OS, Windows component, files and folder and control panel CO5: Explain and train students to utilize Internet, Email and search engine

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■					■		
CO2	■					■		
CO3	■			■		■		
CO4	■	■	■	■		■		
CO5	■	■	■	■	■	■		

Course: 102: Relational Data Base Management System

Course Outcome	CO1: Introduce and explain Basics of Database Management System, organization of files and records, various data models , abstraction and independence of data and basics of NoSQL Databases. CO2: Train students to apply various constraints on database, explain pure query language and how to deal with functional dependency. CO3: Train students on relational commercial language SQL by applying various constraints on database and by performing various SQL queries. CO4: Explain and train students to deal with inconsistency of the database, removing various database anomalies using normalization approach. CO5: Train students to work with DBMS like MS-ACCESS, MySQL, Oracle and DB2 via SQL Interface

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■		■					
CO2	■	■		■			■	
CO3		■		■		■	■	■
CO4	■	■		■			■	■
CO5		■	■		■	■	■	■

Course: 103: Computer Programming and Programming Methodology

Course Outcome	CO1 : Students will be trained to write algorithm and draw flowcharts for solving complex computer programs. CO2 : Students will be able to understand the fundamentals of programming language like operators, datatypes, control structures, strings, arrays etc. CO3 : Students will be able to write user defined functions to write complex code in more simpler way and also understands the reusability of code. CO4 : Understands the concept of pointers and efficient use of memory. They will be able to differentiate between call by value and call by reference in user defined functions. CO5 : Students will be trained to the concepts of file handling , operations on file. CO6 : To make student understand the concept of macro, pre-processor statements and command line arguments.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 104: Enterprise Resource Planning & Financial Management

Course Outcome	CO1. Explain - how an ERP system is implemented and how it is integrated with existing business processes. Make students learn about ERP implementation lifecycle. CO2. Identify the important business functions provided by typical business software such as enterprise resource planning and customer relationship management (CRM). CO3. Explain working for ERP model of large projects or any individual ERP module such as Financial Accounting, Manufacturing, Supply Chain Management, and Project Management etc... CO4. The course gives a good understanding about the concepts and techniques of management accounting like working capital, capital budgeting and ratio analysis which can help student to implementing related modules for Financial accounting module CO5 : Explains to prepare and interpret the fund flow statement, working capital cycle and cost sheet for making proper Decision Support Systems and Costs-Profits Analysis.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

Course: 105: Mathematical Foundation Of Computer Science

Course Outcome	CO1: Explain students the algorithms and statistical properties that form the backbone of Computer Science. CO2: Enhance the logical and analytical thinking using mathematical techniques. CO3: Train students to use the mathematical tools which are essential for finding solutions of real-world problems. CO4: Explain students the fundamental concepts which are useful in network designing to manage the real-world problems. CO5: Explain students the concepts of Linear Algebra which are crucial to many areas of Computer Science.								
Mapping between COs with PSOs		PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
	CO1								
	CO2								
	CO3								
	CO4								
	CO5								

MCA 2nd Semester

Course: 201: Object Oriented Programming

Course Outcome	CO1- Articulate the principles of Object Oriented Problem solving and programming. CO-2-To demonstrate the differences between traditional imperative design and object Oriented Design CO-3-Outline the essential features and elements of C++ programming language. CO-4- To grasp and apply the concepts of class, method, constructor, abstraction, inheritance and Static Polymorphism. CO-5- To understand and apply Dynamic Polymorphism in real world applications. CO-6- To implement Genericity through the usage of Templates.

Mapping between COs and PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■		■	■	■			
CO2	■			■	■	■	■	
CO3	■					■		
CO4		■	■	■		■	■	
CO5		■			■	■	■	■
CO6		■			■	■	■	■

Course: 202: Data Structures

Course Outcome	CO1: Students will understand the concepts of Primitive and Non-Primitive data structures in terms of their internal representation and various operations that can be performed on them. CO2: Students will be able to write programs efficiently and effectively in high level language because of the better understanding of various data structures. CO3: Students will be able to write real world applications efficiently. CO4: Students will be able to use appropriate sorting technique on real world data because of the understanding of various sorting techniques in terms of their time complexity. CO5: Students will be able to apply various algorithms like Divide and Conquer, Greedy Method, Backtracking and Branch & Bound wherever suitable in real world problems. CO6: Students will get insight of Asymptotic like Big-O and Theta which will help them write efficient programs. CO7: Students will get insight of Hashing which is useful to understand the concept like Indexing. CO8: Students will be able to be a part of team which is involved in development of new system software because of the better understanding of the data structures, their internal representation and behaviour, asymptotic complexities etc.

Mapping between COs and PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■		■			■	■	■
CO2	■	■	■	■		■	■	■
CO3	■	■	■	■		■	■	■
CO4	■	■	■	■		■	■	■
CO5	■	■	■	■		■	■	■
CO6	■	■	■	■		■	■	■
CO7	■	■	■	■		■	■	■
CO8	■	■	■	■		■	■	■

Course: 203-Software Engineering

Course Outcomes	CO1 : Students will be able to understand basics about software and software development, the process models such as Waterfall Model, Prototyping, Incremental Models and Spiral Model. CO2 : Students will be able to understand the concept of Agility and models of Agile process such as Extreme Programming model, Adaptive Software Development Model, Scrum Model, Feature Driven Development Model and Lean Software Development Model. CO3 : Students will be able to understand Requirement Gathering, Requirement Engineering, Requirement Analysis and Design. CO4 : Students will be able to understand people, product, process and project about software development. Also understands measures, metrics and indicators of projects. CO5 : Students will be trained for software testing and quality management techniques such as White box testing, Black box testing, unit testing, Integration testing, Validation testing and system testing. CO6 : Students will be trained for Risk Management : Identification and Assessment of risk, Risk Projection. Mitigation, Monitoring and management.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■		■	■			■	■
CO2	■	■	■	■		■	■	
CO3	■	■		■	■		■	■
CO4			■	■				
CO5	■		■	■	■			
CO6		■			■		■	

Course: 204: Optimization Techniques

Course Outcome	CO1 : Explain students the fundamental aspects of the Linear Programing , Transportation and Assignment Problem. CO2 : Students will able to understand core concepts of Inventory problems and its solutions. CO3 : Students will able to understand Project Evaluation and Review Technique and Critical Path Method. CO4 : After studying the course, students will be able to solve real time practical applications using linear programming and its models. The course also makes students learn about transportation problem, assignment problem, job sequencing, inventory problem, and network analysis using CPM, PERT

Mapping between COs and PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■		■					
CO3	■	■	■		■			
CO4		■	■	■		■	■	■

Course: 205: Computer Network

Course Outcome	CO1 : Understand students the fundamental aspects of the computer networks. CO2 : Explain and help students to learn fundamentals network protocols at data link layer, network layer and transport layer. CO3 : Explore students the services offered at each layer of the network protocol stack. CO4 : Train students to implement various error control, flow control, routing algorithms and security algorithms fall under data link layer, network layer and transport layer. CO5 : Explore students the concepts of Security, digital certificate, Public key Infrastructure, and similar security schemes.

Mapping between COs and PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

MCA 3rd Semester

Course: 301: Client Server Architecture

Course Outcome	CO1: Students will be able to understand and evaluate the role of database management systems in IT applications within an organization. CO2: Students will be able to normalise any real-life database and hence they will be able to design and implement properly structured databases of real-world applications. CO3: Students will be able to write queries using Structured Query Language (SQL) and programs using PL/SQL. CO4: Students will understand how Oracle Database works and the importance of various components of Oracle Database. CO5: Students will understand administration and security enforcement of Oracle Database. This will help them in pursuing higher studies and career in Database Administration. CO6: Students will be able to manage Oracle Database of a company. CO7: Students will be able to configure the Database depending on the requirements of the company's business and business policies. CO8: Students will understand the backup and recovery of database.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								
CO7								
CO8								

Course: 302: Operating System

Course Outcome	CO1. Explain students the insight of the evolution history of operating system, the basic architecture and fundamental features of different operating systems. CO2. Explain and train the students with different implementations of the policies for scheduling, process synchronization, deadlocks, memory management, system calls, and file systems. CO3. Expose the core concept of multi-processing/multithreading, that helps them to manage and synchronize the concurrent task/transaction while developing professional program using any platform. CO4. Explain implementation of different file systems to make students able to efficiently manage files and directory with any operating system. CO5. Knowledge of various algorithms for memory management makes the student efficiently utilize memory while developing software. CO6. Students can utilize their Knowledge of device management to configure the different devices as per requirement and perform troubleshooting. Students will be able to define proper policy for security and protection for various devices. CO7. Students will be able to select particular configuration of computer and operating system necessary for the application and perform troubleshooting when required.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								
CO7								

Course: 303: Cloud Computing

Course Outcome	CO1: Explain students about the cloud and cloud computing, history & evolution, properties & characteristics, advantages & disadvantages of cloud computing. CO2: Explain students about various service models and deployment models CO3: To provide students a foundation of different cloud service models IAAS,PAAS and SAAS so that they are able to use Cloud Computing Services in real world problem CO4: Understanding the concepts of cloud infrastructure security, data security and storage, access control and authentication in cloud. CO5: Train students to use Amazon AWS and Microsoft Azure clouds CO6: Explain students in brief about Google's BigTable and Firebase
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 304: Programming in .NET

Course Outcome	CO1 : Study .Net Architecture. CO2 : Design and develop console and window based .NET application. CO3 : To learn basic syntax and implement small applications in VB programming language. CO4 : Create and manipulate GUI components in VB. CO5 : Create applications in VB using Object Oriented Properties. CO6 : Design and implement Database connectivity using ADO.Net. CO7 : Identify and resolve problems in VB applications.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								
CO7								

Course: 305: Java Programming

Course Outcome	CO1 : Understand students the fundamental aspects of the java programming CO2 : Train students to understand various Java In-built classes and its working. CO3 : Train students to develop Java programs for the real world objects using Object-oriented concepts like Classes and Objects, Inheritance, Polymorphism, Interfaces and Abstraction. CO4 : Train students to develop Applets, GUI Programming using various control classes, Event Handling and Adapter classes. CO5 : Explain and train students to deal with the problems related with the java programming database using JDBC and packages. CO6 : Explain students to utilize the Java programming techniques to develop any real world applications
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

MCA 4th Semester

Course: 401: Android Application Programming

Course Outcome	CO1. Train students for installing and using the Android Developer's Toolkit such as SDK Manager, Android Virtual Device, Dalvik Debug Monitor Service (DDMS), Android Debug Bridge (ADB) and make them capable to develop, manage and maintain application(Apps) using Android and publish Apps on Google Play. CO2. Understand the Android software stack & program building blocks like activities, services and notifications to use them effectively to develop Android applications. CO3. Explain working with AndroidManifest, xml resources like layout and values and incorporate xml resources with Java code. CO4. Explain the use of java library for views, controls, menus, dialogs, graphics, media, storage, SQLiteDatabase etc…to make interactive applications. CO5. Train students to build Android app that accessthe database & other resources onweb server using web services. CO6. Train students for managing Telephony and Message services. Make them capable of using Location Manager and Google MAP related APIs for App and create the professional applications.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 402: Information Systems

Course Outcome	CO1: Explain students about information systems. Make them understand the need and different approaches to IS. To make them learn the role and use and different types of IS. Make them understand the MIS development process and explain the difference between general and MIS reports. Also make them understand the legacy systems and make them familiar with various business processes of a firm. CO2: Explain students about organisations and role of IS in organisations. Also make them understand strategic IS. Make them learn E-Commerce and E-Business. CO3: Make students understand Knowledge management and various aspects of knowledge work system. Also, explain them how to use business use AI. CO4: Explain the importance of Decision support systems and also how group decision support systems enhance organizations decision making. Also make them understand about Executive support systems. CO5: Make students understand the security aspect of information systems. CO6: Explain students in brief about security issues of E-commerce and control structure development.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 403: Data Communication and Network Protocols

Course Outcome	CO1: Explain students about fundamental aspects of the network, OSI reference model, TCP IP suite CO2: Explain and train student to use class addressing CO3: Explain about Delivery, forwarding and routing of IP packets, ARP, RARP & ICMP CO4: Explain in detail about UDP and TCP protocol CO5: Explain and train student about DNS, remote login, FTP, SMTP,POP, SNMP etc.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■	■	■	■		■	■	■
CO3	■		■	■			■	■
CO4	■	■	■	■			■	■
CO5	■	■	■	■	■	■	■	■

Course: 403: Cyber Security & Forensics

Course Outcome	CO1 : Explain the students basic aspects of Cyber Security, types of attacks and vulnerabilities. CO2 : Introduce to the world of Cryptography and Information hiding through Steganography. CO3 : To learn basic concept of Security Management at organization level. CO4 : Understand Security Laws in India and Intellectual Property Rights . CO5 : Network Security Threats and their solutions. CO6 : Expose the students to the world of Digital Forensics , its role in solving cyber - crime and introduce to the various tools used in data recovery. CO7 : Identify and resolve problems related to web applications and mobile application security.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■					■		
CO3	■	■	■		■		■	
CO4		■			■	■		
CO5	■		■	■	■		■	
CO6		■	■	■		■		■
CO7		■	■	■		■	■	■

Course: 404: Interactive Computer Graphics

Course Outcome	CO1 : Explain students about fundamentals of Image processing, basic input output technology and standards of Graphics. CO2 : Make students understands about display devices like Hardcopy, Raster-Scan display, Video Controller and Image scanners. Also understands the basic Raster Graphics Algorithms. CO3 : Students will be able to understand Polygon, various Polygon testing methods, methods of fill polygon and character generation. CO4 : Students will be able to understand various algorithms of windowing and clipping such as Cohen – Sutherland Line Clipping Algorithm, Sutherland Hodgman Polygon Clipping Algorithm etc. CO5 : Students will be able to understand 2D and 3D transformations, projections and specifying an Arbitrary 3D view. CO6 : Make students understand about Image Manipulation, Animation and introduction to OpenGL.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 404: Cryptography

Course Outcome	CO1. Understand the security trends. Expose the students with the attacks and services in Cryptography. Understand the mathematical algorithm and theorems related to Cryptography. CO2. Understand the basics of Cryptography. Understand the various cipher techniques. Understand different types of Cryptographic algorithm. CO3. Understand the Cryptography standards and algorithms. Understand the mode of operations. CO4. Understand Public Key Cryptography and Digital Signature CO5. Understand different protocols in Cryptosystem.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

Course: 405: Front-end Technologies

Course Outcome	CO1 : Explain students the insight of the fundamental aspects of the static web technology like HTMl , CSS and Javascript CO2 : Train students to represent declarative knowledge in the Boorstrap and it's components , with help of this students can learn static web designing . CO3 : Train students to understand various Javascript based technologies like Jquery , JSON and AJAX. CO4 : Explain and train students to understand basic concepts of Angular JS. CO5 : Expose the students to the various UI technology and real world use of it.. CO6 : After completion of this course, the student will be able to design and develop web pages and Interactive UI for Web Applications
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■		■					
CO3	■	■	■		■			
CO4		■	■	■		■	■	■
CO5	■		■		■	■		
CO6	■	■		■		■	■	■

MCA 5th Semester (Web Group)

Course: 501: Unix Internals & Shell Programming

Course Outcome	CO1. Acquired concepts of UNIX Operating System, its kernel and different subsystems of kernel, types of shells. CO2. Understand Process Control subsystem, its State diagram, types of scheduling and memory management policies. CO3. Execute various types of commands on the standard shell viz. basic commands, directory and file related, pipe and filter related, process related, user communication related and the system administration related commands. CO4. Implement shell scripts using this editor involving decision control, looping and control flow statements CO5. Understand System Calls and System Call structures CO6. Develop C programs to access UNIX system functions with system calls
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 501: Internet of Things (IoT)

Course Outcome	CO1: Understand the IoT ecosystem and architecture. Understand IoT standards and protocols. Understand the privacy, security and governance issues in IoT applications. Exposing students with IoT botnet and the risks involved with IoT based applications. CO2: Understand the overview and working of the various sensors used in IoT applications. Understanding the Wireless Sensor Network and how IoT devices communicate with each other. CO3: Understand Micro-Controller and its architecture. Understand the usage of Micro-Controller in IoT applications. Understand how Arduino and NodeMCU interact with sensors and communicate over the network. CO4: Understand Micro-Computer and its architecture. Understand the difference between a Micro-Controller and Micro-Computer. Understand the usage of Micro-Computer in IoT applications. Understand how Raspberry Pi interact with sensors and communicate over the network. CO5: Expose the students with Server-side development in IoT applications. Understand how to develop and deploy applications in Arduino and NodeMCU. Understand how Arduino and NodeMCU communicate among themselves, sensors and the server. Understand how to build a full IoT app by integrating them with mobile applications.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

Course: 502: Artificial Intelligence and Knowledge Based Systems

Course Outcome	CO1 : Explain students the insight of the historical and fundamental aspects the artificial intelligence. CO2 : Train students to represent declarative knowledge in the form of symbolic knowledge through various Knowledge Representation (KR) techniques like First Order Predicate Logic (FOPL), Semantic Network, Conceptual Graphs, Scripts, and Frames. CO3 : Train students to apply various searching algorithms fall under informed and uninformed search methods to solve complex problem of AI domain. CO4 : Explain and train students to deal with the uncertainty that inherently lies within many AI problem. CO5 : Expose the students with the analysis and development process of the knowledge based system development. CO6 : Explain students to utilize the AI problem solving techniques in the advanced AI problem domain like Natural Language Processing (NLP) and Computer Vision (CV)
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■		■					
CO3	■	■	■		■			
CO4		■	■	■		■	■	■
CO5	■		■		■	■		
CO6	■	■		■		■	■	■

Course: 503: Advanced Java Programming

Course Outcome	CO1 : Explain students the insight of the various aspects the Java web technologies. CO2 : learn to access database through Java programs, using Java Data Base Connectivity (JDBC). CO3 : Create dynamic web pages, using Servlets and JSP, make a reusable software component, using Java Bean. CO4 : Understand the multi-tier architecture of web-based enterprise applications using Enterprise JavaBeans (EJB), develop Session and Entity Beans CO5 : Expose the students with the analysis and development process of the web application development using Java. CO6 : Map Java classes and object associations to relational database tables with JPA
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■		■					
CO3	■	■			■			
CO4		■	■	■		■		
CO5	■		■		■			
CO6	■	■		■		■	■	■

Course: 503: Advanced Web Technologies

Course Outcome	CO1 : Explain students the fundamental aspects of .NET framework and ASP.NET. CO2 : Train students to use various tools and controls available in ASP.NET in web application development, how to integrate them and to get them work as a part of one single unit. CO3 : Train students to work with database using ADO.NET through design alternatives and through coding as well, also learn the concept of Language Integrated Query. CO4 : Explain and train students to work with MVC architecture to adopt the requirements of modern days application development. Also learn component based development through web services and APIs. CO5 : Expose the students to the new era of .NET Core to understand the upgrades and developments in .NET architecture. CO6 : Explain students to utilize tools & techniques available in ASP.NET for web based application development and server side component development.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	POS4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 504: Advanced iOS Development with Swift

Course Outcome	CO1: Understand the iOS ecosystem and Xcode IDE. Understand the life cycle of iOS application and how to implement it in MVC. Understand Foundation framework in iOS. CO2: Understand the syntax, and semantics of the Swift programming language. Expose the students to CLI applications with Swift. CO3: Understand the UIKit framework in iOS. Understand the usage and working of UI elements in iOS application. Understanding various types of design and their implementation. CO4: Understand data persistence in mobile application. Understand working with files in iOS. Expose students with implementation and usage of database in an iOS application. CO5: Understand the usage and data extraction of sensors in iPhone. Expose the students with Location and MapKit Framework in iOS to build map-based applications. Expose the students with ad-hoc and App Store application deployment.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

Course: 504: NoSQL Databases

Course Outcome	CO1 : Explain students about history, concept , characteristics and types of NoSQL databases CO2: Explain students about the differences between relational databases and NoSQL databases, Advantages and disadvantages of NoSQL databases and application of NoSQL databases CO3: Explain students about fundamentals of MongoDB, MongoDB feature set and Architecture CO4: Train student to create document, collection and databases in MongoDB, use of simple and complex queries to insert, update and view data. CO5: Explain and train student to use MongoDB restful API and applying security CO6: Explain students about Cassandra Architecture, Data modelling in Cassandra and integration of Cassandra with Hadoop CO7: Train student to create and use keyspaces and databases in Cassandra, Also explain and train student about Cassandra administration
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								
CO7								

Course: 505: Open Source Web Based Programming

Course Outcome	CO1 : Explain students the fundamental as well as Advanced aspects of the Open Source Web based Technology. CO2 : Train students about react JS and difference between React JS and React Native. CO3 : Train students to understand MVC structure and it's benefits. CO4 : Explain and train students to deal with possible problem while developing websites and it's solution. CO5 : Expose the students with the analysis and development process of Websites. CO6 : After studying the course, students will be able to understand how Open source web technology works. They will also be able to create database driven Professional Websites.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

MCA 5th Semester (Database Group)

Course: 501: Unix Internals & Shell Programming

Course Outcome	CO1. Acquired concepts of UNIX Operating System, its kernel and different subsystems of kernel, types of shells. CO2. Understand Process Control subsystem, its State diagram, types of scheduling and memory management policies. CO3. Execute various types of commands on the standard shell viz. basic commands, directory and file related, pipe and filter related, process related, user communication related and the system administration related commands. CO4. Implement shell scripts using this editor involving decision control, looping and control flow statements CO5. Understand System Calls and System Call structures CO6. Develop C programs to access UNIX system functions with system calls
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■							
CO3	■							
CO4		■		■	■	■	■	
CO5			■					
CO6	■	■	■	■	■	■	■	■

Course: 501: Internet of Things (IoT)

Course Outcome	CO1: Understand the IoT ecosystem and architecture. Understand IoT standards and protocols. Understand the privacy, security and governance issues in IoT applications. Exposing students with IoT botnet and the risks involved with IoT based applications. CO2: Understand the overview and working of the various sensors used in IoT applications. Understanding the Wireless Sensor Network and how IoT devices communicate with each other. CO3: Understand Micro-Controller and its architecture. Understand the usage of Micro-Controller in IoT applications. Understand how Arduino and NodeMCU interact with sensors and communicate over the network. CO4: Understand Micro-Computer and its architecture. Understand the difference between a Micro-Controller and Micro-Computer. Understand the usage of Micro-Computer in IoT applications. Understand how Raspberry Pi interact with sensors and communicate over the network. CO5: Expose the students with Server-side development in IoT applications. Understand how to develop and deploy applications in Arduino and NodeMCU. Understand how Arduino and NodeMCU communicate among themselves, sensors and the server. Understand how to build a full IoT app by integrating them with mobile applications.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1			■			■		
CO2	■	■	■			■	■	■
CO3		■	■	■	■	■	■	■
CO4		■	■	■	■	■	■	■
CO5	■	■	■	■	■	■	■	■

Course: 502: Artificial Intelligence and Knowledge Based Systems

Course Outcome	CO1 : Explain students the insight of the historical and fundamental aspects the artificial intelligence. CO2 : Train students to represent declarative knowledge in the form of symbolic knowledge through various Knowledge Representation (KR) techniques like First Order Predicate Logic (FOPL), Semantic Network, Conceptual Graphs, Scripts, and Frames. CO3 : Train students to apply various searching algorithms fall under informed and uninformed search methods to solve complex problem of AI domain. CO4 : Explain and train students to deal with the uncertainty that inherently lies within many AI problem. CO5 : Expose the students with the analysis and development process of the knowledge based system development. CO6 : Explain students to utilize the AI problem solving techniques in the advanced AI problem domain like Natural Language Processing (NLP) and Computer Vision (CV)
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 503: ERP Using SAP

Course Outcome	CO1 : Explain students the insight of the fundamental aspects of the ERP and SAP. CO2 : Train students to represent declarative knowledge of Sap Application Server and 3-Tier Architecture. CO3 : Train students to understand concepts of Data Dictionary and data structure in ABAP. CO4 : Explain and train students to understand basic concepts of Modularization Technique, Module pool programing, BDC & LSMW and Selection-Screen programming. CO5 : The course emphasizes on teaching SAP implementation as the whole process of transforming ERP business procedures to organization wide requirements. CO6 : After studying this students will be able to understand how to work with ERP modules. After successful completion, students will be able to develop ERP application using SAP.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 503: NoSQL Databases

Course Outcome	CO1 : Explain students about history, concept , characteristics and types of NoSQL databases CO2: Explain students about the differences between relational databases and NoSQL databases, Advantages and disadvantages of NoSQL databases and application of NoSQL databases CO3: Explain students about fundamentals of MongoDB, MongoDB feature set and Architecture CO4: Train student to create document, collection and databases in MongoDB, use of simple and complex queries to insert, update and view data. CO5: Explain and train student to use MongoDB restful API and applying security CO6: Explain students about Cassandra Architecture, Data modelling in Cassandra and integration of Cassandra with Hadoop CO7: Train student to create and use keyspaces and databases in Cassandra, Also explain and train student about Cassandra administration
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								
CO7								

Course: 504: Advanced Database Administration

Course Outcome	CO1 : To provide strong foundation in Advanced Database Administration concepts from an industry perspective. CO2 : To have thorough understanding of Oracle Database Management System internal architecture. CO3 : To understand the security aspects and user management. CO4 : To apply and learn various Oracle utilities CO5 : To learn how to practically tune the database to optimize the overall performance. CO6 : To learn and implement Backup and Recovery.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 505: Data Warehousing & Data Mining

Course Outcome	CO1. Explores Differences between Online Transaction Processing and Online Analytical processing System & describe Multidimensional schemas suitable for data warehousing CO2. Explains Data warehousing architectures and tools for organizing able to voluminous data of online processing systematically in Data warehouse/Data Mart and use those data for making strategic decisions CO3. Explains various data pre-processing methods via data reduction, data cleaning, data integration, data transformation etc... CO4. Trains students to extract knowledge using data mining techniques & to discover interesting patterns from large amounts of data for predictions and classification CO5. Trains students to develop a data mining application for data analysis using various algorithms & tools.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■					■		■
CO2		■		■	■	■		■
CO3			■			■	■	■
CO4		■	■	■		■	■	■
CO5		■	■	■	■	■	■	■

Course: 505: Big Data

Course Outcome	CO1 : Student should be able to understand concept and the building blocks of Big Data CO2 : Student should be able to articulate the programming aspects of cloud computing (map Reduce etc.) CO3 : Access and Process Data on Distributed File System, and to understand big data with the help of different big data applications CO4 : Student must be able to represent the analytical aspects of Big Data CO5 : Students will have understanding of distributed computing and will have hands-on experience on Hadoop CO6 : Student shall know the recent trends related to Hadoop File System, MapReduce etc.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2		■	■					
CO3	■		■					
CO4			■	■	■	■		
CO5	■	■	■					
CO6		■		■		■	■	■

MCA 5th Semester (Network Group)

Course: 501: Unix Internals & Shell Programming

Course Outcome	CO1. Acquired concepts of UNIX Operating System, its kernel and different subsystems of kernel, types of shells. CO2. Understand Process Control subsystem, its State diagram, types of scheduling and memory management policies. CO3. Execute various types of commands on the standard shell viz. basic commands, directory and file related, pipe and filter related, process related, user communication related and the system administration related commands. CO4. Implement shell scripts using this editor involving decision control, looping and control flow statements CO5. Understand System Calls and System Call structures CO6. Develop C programs to access UNIX system functions with system calls
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 501: Internet of Things (IoT)

Course Outcome	CO1: Understand the IoT ecosystem and architecture. Understand IoT standards and protocols. Understand the privacy, security and governance issues in IoT applications. Exposing students with IoT botnet and the risks involved with IoT based applications. CO2: Understand the overview and working of the various sensors used in IoT applications. Understanding the Wireless Sensor Network and how IoT devices communicate with each other. CO3: Understand Micro-Controller and its architecture. Understand the usage of Micro-Controller in IoT applications. Understand how Arduino and NodeMCU interact with sensors and communicate over the network. CO4: Understand Micro-Computer and its architecture. Understand the difference between a Micro-Controller and Micro-Computer. Understand the usage of Micro-Computer in IoT applications. Understand how Raspberry Pi interact with sensors and communicate over the network. CO5: Expose the students with Server-side development in IoT applications. Understand how to develop and deploy applications in Arduino and NodeMCU. Understand how Arduino and NodeMCU communicate among themselves, sensors and the server. Understand how to build a full IoT app by integrating them with mobile applications.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

Course: 502: Artificial Intelligence and Knowledge Based Systems

Course Outcome	CO1 : Explain students the insight of the historical and fundamental aspects the artificial intelligence. CO2 : Train students to represent declarative knowledge in the form of symbolic knowledge through various Knowledge Representation (KR) techniques like First Order Predicate Logic (FOPL), Semantic Network, Conceptual Graphs, Scripts, and Frames. CO3 : Train students to apply various searching algorithms fall under informed and uninformed search methods to solve complex problem of AI domain. CO4 : Explain and train students to deal with the uncertainty that inherently lies within many AI problem. CO5 : Expose the students with the analysis and development process of the knowledge based system development. CO6 : Explain students to utilize the AI problem solving techniques in the advanced AI problem domain like Natural Language Processing (NLP) and Computer Vision (CV)
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■		■					
CO3	■	■	■		■			
CO4		■	■	■		■	■	■
CO5	■		■		■	■		
CO6	■	■		■		■	■	■

Course: 503: Network Essentials and its Security

Course Outcomes	CO1: Explain students familiar about network essentials. Make them familiar with various network devices like repeaters, bridge router, and gateway. CO2: Explain how to administer computer network. Make them understand various wide area network techniques, and explain network security. CO3: To understand cryptography, PKI, and digital signatures. CO4: Familiarize with various security services, and how certification and key management is handled in PKI. CO5: To make students understand various network security applications; covering internet protocol security, web security, email security, network management and its security. CO6: Make students understand access control, authentication schemes, firewalls, and virtual private network. Also to learn intrusion detection, virus and mobile and e-commerce security systems.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■	■		■	■	■	■	
CO3	■	■	■			■	■	■
CO4	■	■	■	■		■	■	■
CO5	■	■	■	■	■			■
CO6							■	■

Course: 504: Network Administration

Course Outcomes	CO1: Understand networking fundamentals and networking using tcp/ip protocol. CO2: Learn network management using dhcp, dns, and nfs. CO3: Learn network management using Linux os; and also remote administration. CO4: Understand administration services, task automation and cron daemon on Linux. CO5: Understand samba service and its configuration CO6: Learn to configure and use system wide logging and network information service
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 505: Wireless Network and Mobile Computing

Course Outcomes	CO1: Make students learn fundamentals of wireless technologies. CO2: Make students learn W-LAN technologies, and explain its implementation. CO3: To understand hardware, its implementation and protocols for wireless network. CO4: Explain MANET, its applications, protocols associated, and routing algorithms. CO5: Learn mobile computing and its architecture. Also learn GSM, GPRS and WAP.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

MCA 5th Semester (General Group)

Course: 501: Unix Internals & Shell Programming

Course Outcome	CO1. Acquired concepts of UNIX Operating System, its kernel and different subsystems of kernel, types of shells. CO2. Understand Process Control subsystem, its State diagram, types of scheduling and memory management policies. CO3. Execute various types of commands on the standard shell viz. basic commands, directory and file related, pipe and filter related, process related, user communication related and the system administration related commands. CO4. Implement shell scripts using this editor involving decision control, looping and control flow statements CO5. Understand System Calls and System Call structures CO6. Develop C programs to access UNIX system functions with system calls
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 501: Internet of Things (IoT)

Course Outcome	CO1: Understand the IoT ecosystem and architecture. Understand IoT standards and protocols. Understand the privacy, security and governance issues in IoT applications. Exposing students with IoT botnet and the risks involved with IoT based applications. CO2: Understand the overview and working of the various sensors used in IoT applications. Understanding the Wireless Sensor Network and how IoT devices communicate with each other. CO3: Understand Micro-Controller and its architecture. Understand the usage of Micro-Controller in IoT applications. Understand how Arduino and NodeMCU interact with sensors and communicate over the network. CO4: Understand Micro-Computer and its architecture. Understand the difference between a Micro-Controller and Micro-Computer. Understand the usage of Micro-Computer in IoT applications. Understand how Raspberry Pi interact with sensors and communicate over the network. CO5: Expose the students with Server-side development in IoT applications. Understand how to develop and deploy applications in Arduino and NodeMCU. Understand how Arduino and NodeMCU communicate among themselves, sensors and the server. Understand how to build a full IoT app by integrating them with mobile applications.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								

Course: 502: Artificial Intelligence and Knowledge Based Systems

Course Outcome	CO1 : Explain students the insight of the historical and fundamental aspects the artificial intelligence. CO2 : Train students to represent declarative knowledge in the form of symbolic knowledge through various Knowledge Representation (KR) techniques like First Order Predicate Logic (FOPL), Semantic Network, Conceptual Graphs, Scripts, and Frames. CO3 : Train students to apply various searching algorithms fall under informed and uninformed search methods to solve complex problem of AI domain. CO4 : Explain and train students to deal with the uncertainty that inherently lies within many AI problem. CO5 : Expose the students with the analysis and development process of the knowledge based system development. CO6 : Explain students to utilize the AI problem solving techniques in the advanced AI problem domain like Natural Language Processing (NLP) and Computer Vision (CV)
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 503: Network Essentials and its Security

Course Outcome	CO1: Explain students familiar about network essentials. Make them familiar with various network devices like repeaters, bridge router, and gateway. CO2: Explain how to administer computer network. Make them understand various wide area network techniques, and explain network security. CO3: To understand cryptography, PKI, and digital signatures. CO4: Familiarize with various security services, and how certification and key management is handled in PKI. CO5: To make students understand various network security applications; covering internet protocol security, web security, email security, network management and its security. CO6: Make students understand access control, authentication schemes, firewalls, and virtual private network. Also to learn intrusion detection, virus and mobile and e-commerce security systems.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1								
CO2								
CO3								
CO4								
CO5								
CO6								

Course: 504: Advanced Database Administration

Course Outcome	CO1 : To provide strong foundation in Advanced Database Administration concepts from an industry perspective. CO2 : To have thorough understanding of Oracle Database Management System internal architecture. CO3 : To understand the security aspects and user management. CO4 : To apply and learn various Oracle utilities CO5 : To learn how to practically tune the database to optimize the overall performance. CO6 : To learn and implement Backup and Recovery.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■		■	■	■	■		
CO2	■			■	■		■	
CO3								
CO4			■	■			■	
CO5		■			■	■	■	■
CO6		■			■	■	■	

Course: 505: Open Source Web Based Programming

Course Outcome	CO1 : Explain students the fundamental as well as Advanced aspects of the Open Source Web based Technology. CO2 : Train students about react JS and difference between React JS and React Native. CO3 : Train students to understand MVC structure and it's benefits. CO4 : Explain and train students to deal with possible problem while developing websites and it's solution. CO5 : Expose the students with the analysis and development process of Websites. CO6 : After studying the course, students will be able to understand how Open source web technology works. They will also be able to create database driven Professional Websites.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7	PSO8
CO1	■							
CO2	■		■					
CO3	■	■	■		■			
CO4		■	■	■		■	■	■
CO5	■		■		■	■		
CO6	■	■		■		■	■	■

Post Graduate Diploma in Computer Application

PGDCA 1st Semester

Course: 101: Fundamentals of Computers and Introduction to Information Technology

Course Outcomes	CO1: Explain students about how computer works and the importance of various components of computers CO2: Understanding the secondary storage devices like HDD, CD, DVD, Bluray and other portable devices CO3: To provide students a foundation of the importance and use of operating systems. CO4: Explain and train students to use GUI OS, Windows component, files and folder and control panel CO5: Explain and train students to utilize Internet, Email and search engine

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						

Course: 102: Database Management Systems

Course Objective	CO1: Introduce and explain Basics of Database , Database Management System, Various pros and cons of manual system and database system, Relational database and its applications. CO2: Train students to apply various constraints on database and to store and retrieve data easily. CO3: Explain and train students to deal with inconsistency of the database, removing various database anomalies using normalization approach. CO4: Train students to work with DBMS like MS-ACCESS, MySQL, Oracle and DB2 via SQL Interface

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						

Course: 103: Fundamentals of 'C' programming

Course Outcome	CO1 : Students will be trained to write algorithm and draw flowcharts for solving complex computer programs. CO2 : Students will be able to understand the fundamentals of programming language like Variables, Scope of variables and also the storage classes (How and where the value of the variable will be saved?) CO3 : Students will be able to understand the basics of programming language such as operators, datatypes, control structures etc. CO4 : Students will be able to write user defined functions to write complex code in more simpler way and also understands the reusability of code.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■		■	■		■
CO2	■	■				
CO3	■		■		■	
CO4	■	■	■			

Course: 104: GUI Programming – I

Course Outcome	CO1: Introduce and explain various basic components of Microsoft.NET frame work and VB.NET Language. CO2: Explain students about various programming fundamentals and VB.Net components which help them to work with basic .NET Programs. CO3: Train students to work with windows forms and various .NET tools that helps to create windows based application in VB.Net CO4: Explain and train students to work with various Container controls, Various Dialog Boxes and Types of Menu controls of VB.NET. CO5: Train students to work with integration of Database and .NET application using ADO.Net that fulfill the basic requirements to create a project.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	■					
CO2		■				
CO3			■			
CO4		■	■	■	■	■
CO5	■	■	■	■	■	■

Course: 105: Office Automation Tools

Course Outcome	CO1 : Explain fundamental aspects of the MS Office suite and it's advantages to the students CO2 : Train students about word processing such as formatting, tables, Macro, Mail Merge etc. using MS Word.. CO3 : Train students about concepts like data formatting, conditional formatting, chats etc. using MS Excel. CO4 : Explain and train students about Professional Presentation with various tools like Animation, adding graphics and sound using MS PowerPoint. CO5 : Expose the students to the various data formatting, processing and presentation technology and real world use of it. CO6 : After studying the course, students will be able to work with office suite and also understand about the important features of word processing software, spreadsheet software and presentation software.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						
CO6						

PGDCA 2nd Semester

Course: 201: GUI Programming - II

Course Outcome	CO1: Introduce and explain basics of Microsoft.NET and VB.NET Language, Types of menus , various windows tools and Exception handling methodology in detail. CO2: Explain students about Advanced GUI controls and train student to work with Multiple Document Interface , Web browser control and basics about configuration file . CO3: Train students to work with Multiple Document Interface that helps in project design and development. CO4: Explain and train students to deal with Connected and Disconnected Architecture of ADO .NET and data binding with grid view control. CO5: Train students to work with integration of Database system and .NET application that helps them to develop VB.NET project by using various database systems.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PsSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						

Course: 202: Web Designing tools

Course Outcome	CO1 : Explain fundamental aspects of JavaScript and CSS. CO2 : Train students about concepts of Graphics Basic like various image type, Tolerance, Opacity , Types of Color etc. CO3 : Train students about Photoshop and it's various tools. CO4 : Explain and train students about How to make professional HTML,CSS based Static HTML websites and how to make different professional images for website using Photoshop. CO5 : Expose the students to the various Advance Photoshop techniques like Transformation, layers Channels and Filters. CO6 : After studying this course, students will be able to understand and create HTML web pages with multimedia.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						
CO6						

Course: 203: Network Essentials and E-Commerce

Course Outcome	CO1 : Understand students the fundamental aspects of the computer network, Internet and E-Commerce. CO2 : Train students to understand various aspects to deal with the Internet connection like communication devices, PSTN, DSL, Network addressing. CO3 : Familiarize students with the process of E-commerce and security concerns while using E-commerce in business management. CO4 : Explain student recognize the business impact and potential of e-commerce and the economic consequence of e-Commerce CO5 : Explain students the trends in e-Commerce and the use of the Internet.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						

Course: 204: Basics of Accounts and Accounting Package

Course Outcome	CO1. Gives knowledge of the basic terminology of financial and management accounting system CO2. Introduces the process of double entry system and its various components like Journal, Cashbook, Subsidiary Books and Ledger etc... CO3. Students will be able to understand the entire process of financial accounting starting from journal entry up-to preparing & interpreting final accounts. CO4. Explores the various component of accounting package and usage of accounting package for commercial use. CO5. Trains student to perform book keeping, to prepare final account and financial statements using accounting package.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						
CO4						
CO5						

Ph.D Coursework

Paper – I Research Methodology

Course Outcomes	CO1: Discuss different methodologies and techniques used in research work. CO2: Explain basic computer skills necessary for the conduct of research. CO3: Assess the basic function and working of programming and analytical software used in research. CO4: Propose the required numerical skills necessary to carry out research. CO5: Organize and conduct research in an organized and ethical manner.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							

Elective I : Advanced Web Technology

Course Outcomes	CO1: Explain researchers the Advanced aspects of the Web based Technology. CO2: Train various web technologies like Java, Microsoft .NET and Open-Source PHP in the aspects of Performance, Security, System Resource Requirement etc. CO3: Train various advanced web technologies like Swing, Silverlight, AJAX, JQuery, MVC etc. CO4: Explain and train researchers to deal with possible problems & their solutions while developing websites. CO5: Expose the researchers with the analysis and development process of Websites and recent trends in Markup Languages.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1							
CO2							
CO3							
CO4							
CO5							

Elective II : Operating Systems

Course Outcomes	CO1: Explain and train the researchers with different implementations of the policies for scheduling, process synchronization, deadlocks, memory management, system calls, and file systems. CO2: Expose the researchers with the core concepts of multi-processing/multithreading, that will help them to manage and synchronize the concurrent tasks/transactions while developing professional program of their research problem using any platform. CO3: Impart knowledge of various algorithms for memory management that will make the researchers efficiently utilize memory while developing a software. CO4: Expose the researchers with the core concepts of distributed systems and distributed resource management. CO5: The researchers will be able to compare various Operating Systems in the aspects of Memory Management, File System and Security.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	■	■				■	
CO2	■	■				■	
CO3			■	■	■	■	
CO4	■	■		■			
CO5	■			■	■		■

Elective III : Database Concepts and Knowledge Management

Course Outcomes	CO1: The researchers will get an insight on how the data is stored in various types of Files. CO2: The researchers will get an insight of internal structure of various types of indices, their merits, and demerits. They will understand how these indices will be affected and updated whenever the data is updated. CO3: The researchers will be able to optimize query which will, in turn, help in improving the performance of the overall system. CO4: The researchers will study recent trends in database. They will also get an idea about the Spatial & Temporal Data. CO5: This course will help the researchers to understand the internal working of data storage and indices. This will help them in choosing an appropriate database for their research.

Mapping between COs with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	■						■
CO2	■	■	■	■	■	■	■
CO3	■			■	■	■	
CO4	■			■	■	■	■
CO5	■			■	■	■	■

Elective IV : Object-Oriented Programming Methodology

Course Outcomes	CO1: The researcher will get an insight into the principles of Object-Oriented Problem solving and programming. CO2: The researcher will be able to compare the object-oriented features of at least three programming languages. CO3: The researcher will be able to compare and implement advanced object-oriented features like generic programming across at least three programming languages. CO4: The researcher will be able to understand and study the object-oriented features incorporated in various Database Management Systems. CO5: The researcher will be able to do gap analysis and proceed further in Research area of Object-Oriented Methodology and Data Management.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	■	■		■			
CO2	■			■	■		■
CO3	■			■	■		■
CO4	■		■	■	■	■	■
CO5		■	■	■		■	■

Elective V - Digital Image Processing

Course Outcomes	CO1: Explain the fundamentals of digital image and its processing. CO2: Perform image enhancement techniques in spatial and frequency domain. CO3: Explain the mathematical modelling of image restoration and compression. CO4: Apply the concept of image segmentation. CO5: Describe object detection and recognition techniques.
Mapping between COs with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6	PSO7
CO1	■	■					■
CO2		■	■	■	■	■	
CO3		■	■	■	■	■	
CO4		■	■	■	■	■	
CO5	■	■	■	■	■	■	■

એકેડેમિક કાઉન્સિલ તા. 05/02/2022
બાબત.....૨૦.....બિડાણ/પરિશિષ્ટ.....30.....

Fwd: management ફેકલ્ટી માં PhD ગાઇડ ની સંખ્યા બાબત

From: Registrar, VNSGU (registrar@vnsgu.ac.in)

To: pg@vnsgu.ac.in; prakashbacharwala@yahoo.co.in

Date: Thursday, 3 February, 2022, 04:03 pm IST

Thanks & Regards

I/C Registrar,

Veer Narmad South Gujarat University, Surat.

---------- Forwarded message ---------
From: **DR. SNEHAL MISTRY** <drsnehalmistry@vtcbb.edu.in>
Date: Thu, Feb 3, 2022 at 2:06 PM
Subject: management ફેકલ્ટી માં PhD ગાઇડ ની સંખ્યા બાબત
To: pg@vnsgu.ac.in <pg@vnsgu.ac.in>
Cc: registrar@vnsgu.ac.in <registrar@vnsgu.ac.in>

આદરણીય સાહેબ શ્રી,

ઉપરોક્ત વિષય ના અનુસંધાન માં મારે રજૂઆત કરવી છે કે management ફેકલ્ટી માં પ્રોફેસર વય મર્યાદા ને લઇ નિવૃત થઇ રહ્યા છે , તદુપરાંત જે સેવા માં ચાલુ છે તે ફેકલ્ટી/ પ્રોફેસર માં PhD સ્કોલર ની સંખ્યા તેઓ લઇ શકે તેટલી થઇ જતા વધુ PhD કરવા ઇચ્છતા વિદ્યાર્થી ને ગાઇડ કરી શકતા નથી જેથી વિદ્યાર્થીઓ બીજી પ્રાઇવેટ યુનિવર્સિટી માં વધુ ફી ભરી PhD કરવું પડે છે. જો વધુ વિદ્યાર્થી આપની યુનિવર્સિટી માં research કરે તો આપની યુનિવર્સિટી ને એકેડેમિક રેન્કિંગ માં પણ તેનો ફાયદો થાય.
ઉપરાંત આપ શ્રી જાણતા જ હશો કે આપની યુનિવર્સિટી માં BBA કોર્સ માં ભણાવતા ઘણા પ્રોફેસરો MBA તેમજ management field માં PhD ધરાવે છે અને વર્ષોનો અનુભવ પણ ધરાવે છે. જો તેમને યુનિવર્સિટી દ્વારા management ફેકલ્ટી માં માન્ય PhD guide બનાવવામાં આવે તો ઘણા PhD કરવા ઇચ્છુક વિદ્યાર્થીઓ તેમનું સંશોધન કાર્ય નવા નીમાયેલા ગાઇડ ની અંદર કરી શકે. તો યુનિવર્સિટી સત્તા મંડળ ને મારી નમ્ર અરજ છે કે આ બાબત ને વિચારાધીન લઇ વિદ્યાર્થીઓ ના હિત માં નિર્ણય લેશો.

આભાર સહ

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College of Business, Computer-Science and Research

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A- માન્ય કરવા માટે BUTમાં મુકાય..

B- નામંજૂર BUT માનાર ના કિસ્સા ને AC માં મુકાય.

AC માં રજૂ કરીને
ઉ.ના. કુલસચિવશ્રી

Snehal
મા. કુલસચિવશ્રી

Legal Cell
V
31/01/22

જનરેમિક કાઉન્સિલ તા. 05/02/2022
બાબતનો ઠરાવ નિયમાનુસાર

સુઓમોટો કેસ નં.૭૨૧/૨૦૨૧.

વી. ન. દ. ગુ. યુનિ. સુરત
આવક નં. 1183
તારીખ 31-1-22

(COURT)

કોર્ટ ઓફ કમિશ્નર (દિવ્યાંગ વ્યક્તિઓ માટેના) ગુજરાત રાજય
THE RIGHT OF PERSONS WITH DISABILITES ACT- 2016
કર્મયોગી ભવન,બ્લોક નં.૨,ગ્રાઉન્ડ ફ્લોર, ડી વિંગ -૧, સેકટર -૧૦ ગાંધીનગર ૩૮૨૦૧૦. સંપર્ક નં. ૧૬૭૪૮

ક્રમાંક.કમિ/લીગલ/૨૦૨૧-૨૨/૭૭૮
તા. ૨૭/૧/૨૨

વાદી.
સુઓ મોટો કેસ.

વિરૂદ્ધ

પ્રતિવાદી.
અગ્ર સચિવશ્રી,
શિક્ષણ વિભાગ,
બ્લોક નં.૫/૭, સરદાર ભવન,
સચિવાલય,ગાંધીનગર.

"THE RIGHT OF PERSONS WITH DISABILITES ACT - 2016" ધારો રાજયમાં પ્રર્વતમાન છે. આ પહેલા દિવ્યાંગજનો ના અધિકાર તેમજ વિકાસની સમાન તકો માટે રાજયમાં વિકલાંગ ધારો (સમાન તકો, રક્ષણ અને પૂર્ણ ભાગીદારી ધારો) ૧૯૯૫ અસ્તિત્વમાં હતો. રાજયમાં "THE RIGHT OF PERSONS WITH DISABILITES ACT - 2016" અમલમાં આવ્યાં બાદ એકટની કલમ ૩૭ અન્વયે, રાજયના જુદા જુદા વિભાગો દ્વારા અમલમાં લાવેલી યોજનાઓ તથા તે અંગેની જોગવાઇઓમાં, દિવ્યાંગજનો ના વિકાસ તેમજ લાભાર્થે ૫% જોગવાઇ રાખવી ફરજીયાત બની રહે છે. જે બાબત ધ્યાને રાખી કમિશ્નર ઓફ કોર્ટ દ્વારા શિક્ષણ વિભાગ તથા યુનિવર્સિટીઓની જુદી - જુદી યોજનાઓ તથા લાભોમાં ૫% રિઝર્વેશન રાખવાની જોગવાઇ નું પાલન થાય, તે માટે સુઓમોટો કેસ હાથ પર લઇ તા. ૩૧/૦૭/૨૦૨૧ ના રોજ સુનવણી રાખવામાં આવેલ હતી.

આ સુનવણીમાં પ્રતિવાદી પક્ષ તરફથી (૧) ડો. જી. એમ. સુતરીયા (ઇન. પ્રિન્સીપાલ ભાવનગર યુ.ની) (૨) એ.જે.રાઠવા C A O S.S.S.V.OMAR, (૩) નૂતનબેન રાવલ (પ્રા.નિયામક)

(૪) એમ.કે.રાવલ (પ્રા. નાયબ નિયામક) (૫) બી.એન.રાજગોર (સંયુક્ત નિયામક ગુજરાત માધ્યમિક ઉચ્ચતર માધ્યમિક શિક્ષણ બોર્ડ) (૬) ડો. રમેશ પરમાર (સૌ. યુનિ. ડે. રજીસ્ટ્રાર) (૭) શ્રી કે. આર. સોલંકી (સૌ. યુનિ. એસ.ઓ.) (૮) એ. એ. શેખ (કમિશ્નર ઓફ સ્કુલ લો ઓફિસર) (૯) વાય. એચ. પટેલ (ના. શિ. નિ. (માંદરા)) (૧૦) બી. કે. પટેલ (નાયબ નિયામક ઉચ્ચશિક્ષણ) (૧૧) ડો. ડી. એમ. બકરાણીયા (પ્રા. શિક્ષણ કચ્છ યુનિ.) (૧૨) ડો. સુજાથા સોની (પ્રોફેસર) હાજર રહેલ હતા.

સદર કામે શિક્ષણ વિભાગ તરફથી કમાંક પરચ/૧૨૨૦૨૧-૧૬૦-વ.૨ તા. ૦૭/૦૮/૨૦૨૧ થી શ્રી બી. વી.રાઠવા ઉપસચિવની સહીથી માહિતીનું પત્રક મોકલાવેલ છે. જે પત્રકમાં (૧) કન્યાઓને મફત શિક્ષણની જોગવાઇ ધોરણ ૯ થી ૧૨ ની ગ્રાન્ટેડ માધ્યમિક અને ઉચ્ચતર માધ્યમિક શાળામાં અભ્યાસ કરતી તમામ વિધ્યાર્થીનીઓને આ યોજનાનો લાભ આપવામાં આવે છે. જેમાં દિવ્યાંગ વિધ્યાર્થીનીઓનો પણ સમાવેશ થાય છે. (૨) ફી કન્શેશન પાસ એસટી નિગમની જેની રકમની જોગવાઇ છે. ધોરણ-૧ થી કોલેજ સુધીનું અભ્યાસ કરતા તમામ વિધ્યાર્થીઓનેઆ યોજનાનો લાભ આપવામાં આવે છે. જેમાં દિવ્યાંગ વિધ્યાર્થીઓનો પણ સમાવેશ થાય છે. (૩) મફત પાઠયપુસ્તક જેમાં ધોરણ ૯ થી ૧૨ની ગ્રાન્ટેડ અને સરકારી માધ્યમિક અને ઉચ્ચતર માધ્યમિક શાળામાં અભ્યાસ કરતા તમામ વિધ્યાર્થીઓને લાભ આપવામાં આવે છે. જેમાં દિવ્યાંગ વિધ્યાર્થીઓનો પણ સમાવેશ થાય છે.

આમ શિક્ષણ વિભાગનાં પત્રક ઉપરથી સ્પષ્ટ થાય છે કે, દિવ્યાંગોને યોજનાઓમાં લાભ આપવામાં આવે છે.

ઉપરોક્ત શિક્ષણ વિભાગે રજુ કરેલ માહિતિ જોતા દિવ્યાંગજનોને લાભ આપવામાં આવે છે. પરંતુ "THE RIGHTS OF PERSONS WITH DISABILITIES ACT - 2016" મુજબ ૫% પ્રમાણે અનામતમા અગ્રતા આપવા બાબતની ક્યાંય સ્પષ્ટતા કરતો ઠરાવ રજુ કરેલ નથી. તો ૫% પ્રમાણે

દિવ્યાંગજનોને લાભ આપવા બાબતનો ઠરાવ કરેલ હોય તો અત્રેની કચેરીને રજુ કરવા અને જો આવા કોઈ ઠરાવ કરવામાં આવેલ ન હોય તો તાત્કાલિક ઠરાવ કરી અત્રેની કોર્ટ ને જાણ કરવાની સુચના આપવામાં આવી.

સદર કામ સંયુક્ત નિયામક ગુજરાતમાં માધ્યમિક અને ઉચ્ચતર માધ્યમિક શિક્ષણ બોર્ડ દ્વારા ક્રમાંક/મઉમશબ/સંશોધન/૨૦૨૧-૩૦૯૯-૩૧૦૦ તારીખ ૨૦/૦૫/૨૦૨૧ થી લેખિતમાં રજૂઆત કરેલ છે. તેઓએ જણાવેલ કે, **"THE RIGHTS OF PERSONS WITH DISABILITIES ACT - 2016"** ની જોગવાઈ અનુસાર વિશિષ્ટ સવલતો આપવા અંગે ગુજરાત માધ્યમિક અને ઉચ્ચતર માધ્યમિક શાળાઓ દ્વારા તારીખ ૨૫/૦૯/૨૦૧૭ નાં પરિપત્રથી રાજ્યના તમામ શિક્ષણાધિકારીઓને સુચના આપેલ છે. જેમાં ઠરાવ જોતા તે ઠરાવમાં (૧) પરીક્ષા સમયમાં વધારો / છૂટછાટ :- લેખીત પરીક્ષામાં 3 કલાકના પ્રશ્નપત્રમાં અડધો કલાકનો સમય આપવામાં આવે છે. (૨) પરીક્ષા ફી :- ગુજરાત માધ્યમિક અને ઉચ્ચતર માધ્યમિક શિક્ષણ બોર્ડની ધોરણ-૧૦ અને ૧૨ની જાહેર પરીક્ષાની ફી માંથી સંપૂર્ણ માફી આપવામાં આવે છે. (૩) પાસીંગ ધોરણ :- ગુજરાત માધ્યમિક અને ઉચ્ચતર માધ્યમિક શાળા દ્વારા લેવામાં આવતી ધોરણ ૧૦ અને ૧૨ ની લેખિત જાહેર પરીક્ષામાં ફક્ત નાપાસ થતા દિવ્યાંગ વિદ્યાર્થીઓને નાપાસ થતાં વિષયોમાં ૧૦૦ ગુણ માંથી ઓછામાં ઓછા ૨૦ ગુણ પાસ થવા માટે મેળવવાના રહે છે. (૪) દિવ્યાંગ વિદ્યાર્થીઓ માટે પરીક્ષા કેન્દ્ર ખાતે કરવામાં આવતી ભૌતિક સુવિધાઓ લાભ આપવામાં આવે છે. (૫) પરીક્ષા દરમિયાન વિશિષ્ટ શૈક્ષણિક સાધન સામગ્રીનો ઉપયોગ ની છૂટછાટ આપવામાં આવે છે. (૬) બ્રેઇન લિપિમાં પ્રશ્નપત્ર આપવામાં આવે છે. (૭) ધોરણ ૧૦/૧૨ ની જાહેર લેખિત પરીક્ષાના મૂલ્યાંકનમાં અંગ્રેજી / અન્ય ભાષામાં જોડણીની ભૂલો અને ખોટા વાક્ય રચના હોય તો ક્ષમ્ય ગણવી તેમજ ગણિત વિષયમાં સ્ટેપ ની ભૂલ ગ્રાહ્ય રાખવામાં આવે છે. (૮) રીડર / રાઇટર (લહિયાની સેવા) આપવી. (૯) વિષય પસંદગીમાં છૂટછાટ આપવામાં આવે છે.

આમ, ઉપરોક્ત ગુજરાતમાં માધ્યમિક અને ઉચ્ચતર માધ્યમિક શિક્ષણ બોર્ડના પરીપત્રો જોતા દિવ્યાંગજનોને લાભ આપવામાં આવે છે. પરંતુ "THE RIGHTS OF PERSONS WITH DISABILITIES ACT – 2016" મુજબ ૫% પ્રમાણે અનામતમા અગ્રતા આપવા બાબતની ક્યાંય સ્પષ્ટતા કરતો ઠરાવ રજુ કરેલ નથી. તો ૫% પ્રમાણે દિવ્યાંગજનોની લાભ આપવા બાબતનો ઠરાવ કરેલ હોય તો અત્રેની કચેરીને રજુ કરવા અને જો આવા કોઈ ઠરાવ કરવામાં આવેલ ન હોય તો તાત્કાલિક ઠરાવ કરી અત્રેની કોર્ટને જાણ કરવાની સુચના આપવામાં આવી.

સદર કામે નિયામકશ્રી ટેકનિકલ શિક્ષણની કચેરી દ્વારા દિવ્યાંગ વિદ્યાર્થીઓ માટે યોજનાનુ અમલીકરણ કરતું પત્રક રજુ કરેલ છે જે જોતા (૧) સક્ષમ યોજના - સદર યોજના AICTE દ્વારા ચલાવવામાં આવે છે. જેમાં ૪૦% થી વધુ ડિસએબલીટી ધરાવતા પ્રથમ વર્ષ ડિગ્રી - ડિપ્લોમા ઇજનેરી અભ્યાસક્રમમાં પ્રવેશ મેળવેલ અને કુટુંબની વાર્ષિક આવક ૬ લાખથી ઓછી હોય તેવા વિદ્યાર્થીઓને ૫૦,૦૦૦ પ્રતિવર્ષ આપવાની જોગવાઈ છે. જેમાં વર્ષ ૨૦૨૧માં લાભાર્થીઓની સંખ્યા ૫ દર્શાવેલ છે. (૨) માનનીય મુખ્યમંત્રી શિષ્યવૃત્તિ યોજના - સદર યોજનાનું નોલેજ કોન્સોરત્યમ ઓફ ગુજરાત (KCG), અમદાવાદ દ્વારા અમલીકરણ કરવામાં આવે છે. જેમાં ધોરણ ૧૨ પાસ કરી ઇજનેરી અભ્યાસક્રમમાં પ્રવેશ મેળવેલ અને કુટુંબની વાર્ષિક આવક ૪.૫ લાખથી ઓછી હોઇ તેવા અને ૪૦%થી વધું ડિસએબલીટી ધરાવતા વિદ્યાર્થીઓને શિક્ષણ ફી ના ૫૦% મુજબ રૂપિયા ૫૦,૦૦૦ પ્રતિ વર્ષની મહત્તમ મર્યાદા માં આપવાની જોગવાઈ છે. વર્ષ દરમિયાન લાભાર્થીઓની સંખ્યા સંખ્યા ૨૦૧૮ – ૧૯ માં સંખ્યા ૭ અને ૨૦૧૯ - ૨૦ માં સંખ્યા ૧૧ અને ૨૦૨૦ - ૨૧ ની સંખ્યા ૧૧ દર્શાવેલ છે.

આમ, ઉપરોક્ત ટેકનિકલ શિક્ષણના પરીપત્રો જોતાં દિવ્યાંગજનોને લાભ આપવામાં આવે છે. પરંતુ "THE RIGHTS OF PERSONS WITH DISABILITIES ACT – 2016" મુજબ ૫% પ્રમાણે અનામતમા અગ્રતા આપવા બાબતની ક્યાંય સ્પષ્ટતા કરતો ઠરાવ રજુ કરેલ નથી. તો ૫% પ્રમાણે

દિવ્યાંગજનોને લાભ આપવા બાબતનો ઠરાવ કરેલ હોય તો અત્રેની કોર્ટને રજુ કરવા અને જો આવા કોઈ ઠરાવ કરવામાં આવેલ ન હોય તો તાત્કાલિક ઠરાવ કરી અત્રેની કોર્ટને જાણ કરવાની સુચના આપવામાં આવી.

સદર કામે પ્રાથમિક શિક્ષણ દ્વારા રજુ કરવામાં આવેલ ઠરાવ ક્રમાંક: ટીસીએમ/૧૪૧૨/૭૦૨/ન તા.૨૧/૦૬/૨૦૧૯ ના શિક્ષણ વિભાગનો ઠરાવ જોતાં પ્રાથમિક શિક્ષણ ડિપ્લોમા (ડી.એલ.એડ) તત્કાલિન પી.ટી.સી પ્રવેશ અંગેના નિયમોમાં સુધારો કરવા સૂચના આપી, શિક્ષણ વિભાગના તા.૧૯/૦૮/૨૦૧૭ નાં સુધારા ઠરાવ ક્રમાંક ટીસીએમ/૧૪૧૨/૭૦૨/ન થી કરવામાં આવેલ સુધારા અને દિવ્યાંગ ઉમેદવારોની મેરિટ યાદી તૈયાર કરી તેના આધારે પ્રવેશ આપવાનો રહેશે.

ભારત સરકારના રાજ્યપત્ર, કાયદા અને ન્યાય મંત્રાલય દ્વારા તા.૨૬/૧૨/૨૦૧૬ના ગેઝેટના ક્લોઝ નં.૩૪ અનુસાર તમામ પ્રકારના દિવ્યાંગ ઉમેદવાર માટે ૫% અનામત જાળવવાની રહે તેવુ દર્શાવેલ છે.

આમ, ઉપરોક્ત પ્રાથમિક શિક્ષણ નિયામકની રજૂઆત તથા ઠરાવ જોતાં, **"THE RIGHTS OF PERSONS WITH DISABILITIES ACT – 2016"** મુજબ ૫% રિઝર્વેશન બાબતનો કોઈ ઠરાવ કરવામાં આવેલ નથી તેવું સ્પષ્ટ જણાય છે. તો પ્રાથમિક શિક્ષણ દ્વારા શિક્ષણ બાબતે મળતા લાભોમાં ૫% દિવ્યાંગજનોને લાભો આરક્ષિત કરતો ઠરાવ કરી અત્રેની કોર્ટને જાણ કરવા સુચના આપવામાં આવી.

સદર કામે ઉચ્ચ શિક્ષણ કમિશ્નરની કચેરી દ્વારા ક્રમાંક/ઉશક/ પીઆરઓ/૨૦૨૧-૨૨/૮૪૦ તા.૩૧/૦૭/૨૦૨૧ થી ગુજરાત સરકારના શિક્ષણ વિભાગનાં (૧) ઠરાવ ક્રમાંક. પરચ/૧૦૨૦૧૪.યુઓઆર-૬/સ, તા. ૦૭/૧૦/૨૦૧૫ મુખ્યમંત્રી યુવા સ્વાવલંબન યોજના

બાબતે ધોરણ ૧૦ અને ૧૨ બાદ ઉચ્ચતર શિક્ષણ ક્ષેત્રમાં વિવિધ અભ્યાસક્રમોમાં વધુમાં વધુ વિદ્યાર્થીઓએ પ્રવેશ બાબતે ઠરાવ કરવામાં આવેલ છે.

આમ ઉપરોક્ત ઉચ્ચ શિક્ષણ કમિશ્નરની કચેરી તરફથી ઠરાવ રજૂ કરવામાં આવેલ છે. જે ઠરાવો જોતા તે ઠરાવોમાં કોઈપણ જગ્યાએ ૫% દિવ્યાંગજનોને આરક્ષણ આપવાની જોગવાઈનો ઉલ્લેખ કરવામાં આવ્યો નથી. તો આ બાબતને ઉચ્ચ શિક્ષણ કમિશ્નરની કચેરીએ ૫% દિવ્યાંગજનોની આરક્ષણ આપવાના ઠરાવ જો કરેલ હોય તો તે રજુ કરવા. અથવા તો ઠરાવ કરેલ ન હોય તો ઠરાવ કરી અત્રેની કોર્ટને જાણ કરવા સુચના આપવામાં આવી.

સદર કામે વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી દ્વારા પત્ર ક્રમાંક આઇપીઆર/ઇ.ઓ.સેલ/૭૦૮૩ તા.૨૮/૦૫/૨૦૨૧ ના રોજ લેખિતમાં જે રજૂઆત કરેલ છે તેમાં મુદ્દા નં.૪ માં જણાવેલ છે કે રાજ્ય સરકાર શ્રી ના આરોગ્ય અને પરિવાર કલ્યાણ વિભાગના ઠરાવ ક્રમાંક: એમસીજી/૧૦૧૭/SES-૧૫/જ તા. ૧૮/૦૩/૨૦૨૦ થી તા. ૧૨/૦૭/૨૦૨૧ થી વિકલાંગ વિદ્યાર્થીઓ માટે સ્નાતક/અનુસ્નાતક અભ્યાસક્રમોમાં જે તે કેટેગરી ફાળવવામાં આવેલ સીટના 3% સીટ અનામત રાખવાની જોગવાઇ મુજબ અનામત રાખવામાં આવેલ છે. તેમજ પી.એચ. વિદ્યાર્થીઓની અનામત બેઠક માટે રાજ્ય સરકારશ્રીની માર્ગદર્શિકા મુજબ ઓછામાં ઓછી ૪૦% ડીસએબીલીટી હોય તેઓને પી.એચ. કેટેગરી માટે પ્રવેશ આપવામાં આવે છે.

આમ, વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટીના જવાબ ઉપરથી સ્પષ્ટ જણાય છે કે,"THE **RIGHTS OF PERSONS WITH DISABILITIES ACT - 2016**" મુજબ દિવ્યાંગજનોને ઉચ્ચ અભ્યાસ માટે ૫% રિઝર્વેશન રાખવાની જોગવાઇ કરેલ નથી. તો આ બાબતે દિવ્યાંગજનોનાં ઉચ્ચ અભ્યાસ માટે "**THE RIGHTS OF PERSONS WITH DISABILITIES ACT - 2016**" મુજબ ૫% દિવ્યાંગજનો માટે રિઝર્વેશન રાખવા ઠરાવ કરી અત્રેની કોર્ટને જાણ કરવા સુચના આપવામાં આવી.

સદર કામે શ્રી સોમનાથ સંસ્કૃત યુનિવર્સિટી પત્ર કમાંક સસયુ/મહેકમ/૧૩૪૭/૨૦૨૧ તા.૨૯/૦૭/૨૦૨૧ ના પત્ર કમાંક થી જણાવેલ છે કે, શ્રી સોમનાથ સંસ્કૃત યુનિવર્સિટી એડમિશન પ્રક્રિયા માં સંસ્કૃત યુનિવર્સિટી હોવાથી ઓછી સંખ્યામાં વિદ્યાર્થીઓ એડમિશન લેતા હોય દરેક વિદ્યાર્થીઓને એડમીશન મળી જાય છે. હજુ સુધી કોઈ દિવ્યાંગ ઉમેદવારોએ એડમિશન માટે અરજી કરેલ નથી. બી.એ., બી.એડ.ની પ્રવેશ પ્રક્રિયામાં વિકલાંગ માટે સીટો રિઝર્વેશન કરવામાં આવેલ છે. જે જાહેરાતને વિગતો માં દર્શાવેલ છે.

જેથી શ્રી સોમનાથ સંસ્કૃત યુનિવર્સિટીના જવાબ ઉપરથી સ્પષ્ટ જણાય છે કે, **"THE RIGHTS OF PERSONS WITH DISABILITIES ACT – 2016"** મુજબ દિવ્યાંગજનોને ઉચ્ચ અભ્યાસ માટે ૫% રિઝર્વેશન રાખવાની જોગવાઇ કરેલ નથી. તો આ બાબતે ઠરાવ કરી અત્રેની કોર્ટને જાણ કરવા સુચના આપવામાં આવી.

સદર કામે સરદાર પટેલ યુનિવર્સિટી વલ્લભ વિધ્યાનગર આણંદ દ્વારા અત્રેની કોર્ટમાં કોઈ લેખિત જવાબ રજુ કરેલ નથી.

સરદાર પટેલ યુનિવર્સિટી વલ્લભ વિધ્યાનગર આણંદ દ્વારા અત્રેની કોર્ટમાં કોઈ લેખિત જવાબ રજુ કરેલ નથી. જેથી **"THE RIGHTS OF PERSONS WITH DISABILITIES ACT – 2016"** મુજબ દિવ્યાંગજનોને ઉચ્ચ અભ્યાસ માટે ૫% રિઝર્વેશન રાખવાની જોગવાઇ કરેલ છે કે કેમ તે સ્પષ્ટ થતું નથી તો આ બાબતે ઉચ્ચ અભ્યાસ માટે'તો ૫% પ્રમાણે દિવ્યાંગજનોની લાભ આપવા બાબતનો ઠરાવ કરેલ હોય તો અત્રેની કોર્ટને રજુ કરવા અને જો આવા કોઈ ઠરાવ કરવામાં આવેલ ન હોય તો તાત્કાલિક ઠરાવ કરી અત્રેની કોર્ટને જાણ કરવાની સુચના આપવામાં આવી.

ગુજરાત યુનિવર્સિટી દ્વારા ૦૫/૦૮/૨૦૨૧ થી પત્ર વ્યવહાર કરેલ છે જે પત્ર વ્યવહાર જોતા તથા **C.D. (Compact Disk)** રજૂ કરેલ છે. જે **CD** જોતાં તેમાં સામેલ **"THE RIGHTS OF**

PERSONS WITH DISABILITIES ACT – 2016" અંતર્ગત ઉચ્ચ અભ્યાસ માટે ૫% રિઝર્વેશનમાં કોઈ ઠરાવ કરેલ હોય તેમ જણાતું નથી.

ગુજરાત યુનિવર્સિટીના જવાબ ઉપરથી સ્પષ્ટ જણાય છે કે, "THE RIGHTS OF PERSONS WITH DISABILITIES ACT – 2016"મુજબ દિવ્યાંગજનોને ઉચ્ચ અભ્યાસ માટે ૫% રિઝર્વેશન રાખવાની જોગવાઇ કરેલ નથી. તે સ્પષ્ટ થાય છે તો આ બાબતે ઉચ્ચ અભ્યાસ માટે "THE RIGHTS OF PERSONS WITH DISABILITIES ACT – 2016" મુજબ ૫% દિવ્યાંગજનો માટે રિઝર્વેશન રાખવા ઠરાવ કરી અત્રેની કોર્ટને જાણ કરવા સુચના આપવામાં આવી.

ભક્ત કવિ નરસિંહ મહેતા યુનિવર્સિટી જુનાગઢ દ્વારા અત્રેની કોર્ટમાં કોઈ લેખિત જવાબ રજુ કરેલ નથી. જેથી "THE RIGHTS OF PERSONS WITH DISABILITIES ACT – 2016" મુજબ દિવ્યાંગજનોને ઉચ્ચ અભ્યાસ માટે ૫% રિઝર્વેશન રાખવાની જોગવાઇ કરેલ છે કે કેમ તે સ્પષ્ટ થતું નથી. તો આ બાબતે ઉચ્ચ અભ્યાસ માટે ૫% પ્રમાણે દિવ્યાંગજનોને અનામત આપવા બાબતનો ઠરાવ કરેલ હોય તો અત્રેની કોર્ટને રજુ કરવા અને જો આવા કોઈ ઠરાવ કરવામાં આવેલ ન હોય તો ઠરાવ કરી અત્રેની કોર્ટને જાણ કરવાની સુચના આપવામાં આવી.

શ્રી ગોવિંદ ગુરૂ યુનિવર્સીટી ગોધરા દ્વારા અત્રેની કોર્ટમાં કોઈ લેખિત જવાબ રજુ કરેલ નથી. જેથી "THE RIGHTS OF PERSONS WITH DISABILITIES ACT – 2016" મુજબ દિવ્યાંગજનોને ઉચ્ચ અભ્યાસ માટે ૫% રિઝર્વેશન રાખવાની જોગવાઇ કરેલ છે કે કેમ તે સ્પષ્ટ થતું નથી તો આ બાબતે ઉચ્ચ અભ્યાસ માટે ૫% પ્રમાણે દિવ્યાંગજનોની લાભ આપવા બાબતનો ઠરાવ કરેલ હોય તો અત્રેની કોર્ટને રજુ કરવા અને જો આવા કોઈ ઠરાવ કરવામાં આવેલ ન હોય તો ઠરાવ કરી અત્રેની કોર્ટને જાણ કરવાની સુચના આપવામાં આવી.

કચ્છ યુનિવર્સિટી દ્વારા પત્ર કમાંક કયુ / કમિ / વિકલાંગ / સુઓમોટોકેસ / સમન્સ / ૨૦૨૧/૩૪૧૦ તા. ૨૪/૦૫/૨૦૨૧ નાં પત્રથી લેખિત જવાબ રજુ કરેલ છે જે જવાબમાં તેઓએ જણાવેલ છે કે તેમને કોઈ સ્કીમ નથી તેવું જણાવેલ છે.

કચ્છ યુનિવર્સિટીના જવાબ ઉપરથી સ્પષ્ટ જણાય છે કે,"**THE RIGHTS OF PERSONS WITH DISABILITIES ACT - 2016**"મુજબ દિવ્યાંગજનોને ઉચ્ચ અભ્યાસ માટે ૫% રિઝર્વેશન રાખવાની જોગવાઇ કરેલ નથી. તો આ બાબતે ઉચ્ચ અભ્યાસ માટે "**THE RIGHTS OF PERSONS WITH DISABILITIES ACT - 2016**" મુજબ ૫% દિવ્યાંગજનો માટે રિઝર્વેશન રાખવા ઠરાવ કરી અત્રેની કોર્ટને જાણ કરવા સુચના આપવામાં આવી.

ચિલ્ડ્રન યુનિવર્સિટી દ્વારા પત્ર કમાંક ચિ.યુ./કોર્ટ/૨૦૨૧/વ-૩૧૫૫/A તા.૧૭/૦૮/૨૦૨૧ ના પત્રથી જણાવેલ છે કે તેઓએ માહિતી પત્રક મુજબ માહિતી મોકલી આપેલ છે. પરંતુ માહિતી પત્રકમાં **RPWD ACT SEC - 23** મુજબ ફરિયાદ નિવારણ અધિકારની નિમણૂક કરેલ છે જે બાબતે વ્યવસ્થા કરેલ છે. તથા **RPWD ACT SEC - 44,45** મુજબ કચેરીના બિલ્ડિંગને સુગમ્ય વ્યવસ્થા પ્રાપ્ત કરેલ છે તે બાબતે માહિતી લખેલ છે.

પરંતુ તેઓ દ્વારા ૫% રિઝર્વેશન બાબતે કોઈ માહિતી આપવામાં આવેલ નથી કે ૫% અનામત માટે કોઈ ઠરાવ કરવામાં આવેલ હોય તેવું જણાતું નથી. તો ચિલ્ડ્રન યુનિવર્સિટી દ્વારા "**THE RIGHTS OF PERSONS WITH DISABILITIES ACT - 2016**" મુજબ ૫% અનામતનો લાભ આપવા સારૂ ઠરાવ કરવા સૂચના આપવામાં આવી.

બાસાહેબ આંબેડકર ઓપન યુનિવર્સિટી દ્વારા પત્ર કમાંક નં.બીએઓયુ / રજી / વહી / ૧૬૧૭૯ /૨૦૨૧ તા.૦૯/૦૭/૨૦૨૧નાં પત્રથી જણાવેલ છે કે જે પત્રમાં પેરા નંબર૨માં જણાવેલ છે કે, રજુ કરેલ પત્રમાં આપના વિભાગને શબ્દપ્રયોગ કરેલ છે. જે ધ્યાને લેતા જણાવવાનું કે, અત્રેની યુનિવર્સિટીનો વહીવટ શિક્ષણ વિભાગ છે.

તેમણે જણાવેલ છે:- "THE RIGHTS OF PERSONS WITH DISABILITIES ACT - 2016" મુજબ આપના વિભાગની યોજનાઓમાં દિવ્યાંગજનો માટે ૫% અનામતનો લાભ આપવા બાબતની જોગવાઇ કરવામાં આવેલ છે. રાજ્યમાં દિવ્યાંગ ધારો અસ્તિત્વ ધરાવે છે. તેના અંમલીકરણ માટે દિવ્યાંગ ધારામાં જોગવાઇ હોવા છતા આપના વિભાગ દ્વારા અમલ કરવામાં આવેલ હોય તેમ જણાતું નથી. જેથી દિવ્યાંગજનોના અધિકારો તેટલા અંશે ખંડિત / અન્યાય થયેલ હોવાનું માની શકાયે.

આમ ઉપરોક્ત પત્ર વંચાણે લેતા જણાઈ આવે છે કે, ડોક્ટર બાબા સાહેબ આંબેડકર યુનિવર્સિટી દ્વારા દિવ્યાંગો માટે ૫% અનામત રાખવાની કોઇ જોગવાઈ તેઓ દ્વારા કરવામાં આવેલ નથી. જેથી દિવ્યાંગજનો માટે ૫% અનામતની જોગવાઈ કરવાની સૂચના આપવામાં આવી.

હેમચંદ્ર નોર્થ ગુજરાત યુનિવર્સિટી પાટણ દ્વારા પત્રે ક્રમાંકઃ કુસ / લીગલ / આરટીઆઇસેલ /૨૦૦૪/૨૦૨૧ તા.૦૯/૦૭/૨૦૨૧ જેમાં જણાવેલ છે કે, આ યુનિવર્સિટી દ્વારા "THE RIGHTS OF PERSONS WITH DISABILITIES ACT - 2016"ની રાજ્યની કોઈ યોજનાઓ આ યુનિવર્સિટીમાં ચાલતી નથી. તેથી આ સંસ્થાની માહિતી નીલ ગણવા વિનંતી કરેલ છે. તથા આ યુનિવર્સિટી દ્વારા કાર્યરત જુદા જુદા અભ્યાસક્રમો ચાલે છે. અને તેમાં આ અંગે ઘટતી યોજના પ્રવેશનાં નિયમો રજુ કરવા જણાવેલ છે. તેની નકલ રજુ કરેલ છે. જે જોતાં પેરા નં. ૫ ઉપર દિવ્યાંગ માટે અનામત જેમાં "દિવ્યાંગ ઉમેદવારો માટે જે તે કેટેગરીમાંથી 3% બેઠક અનામત આપવામાં આવશે તેવું દર્શાવેલ છે. જે ઉપરથી સ્પષ્ટ થાય છે કે હેમચંદ્ર ઉત્તર ગુજરાત યુનિવર્સિટી તરફથી હાલમાં પણ જુના કાયદા પ્રમાણે 3% જ દિવ્યાંગજનોને અનામત આપવામાં આવે છે. પરંતુ "THE RIGHTS OF PERSONS WITH DISABILITIES ACT - 2016" મુજબ ૫% અનામતની જોગવાઈ કરવાની થાય છે. જે કરેલ નથી જેથી સત્વરે ૫% દિવ્યાંગજનો માટે અનામત રાખવાની જોગવાઈ કરી ઠરાવ કરી અત્રેની કોર્ટને જાણ કરવા સૂચના આપવામાં આવી.

સૌરાષ્ટ્ર યુનિવર્સિટી પત્ર ક્રમાંક નં.જોડાણ/૮/૮૩૩/૨૦૨૧ તા.૧૮/૦૮/૨૦૨૧નાં પત્રથી જણાવેલ છે કે, "THE RIGHTS OF PERSONS WITH DISABILITIES ACT – 2016" ની કલમ ૩૨ મુજબ, ઉચ્ચ શિક્ષણની સરકારી તથા સરકારશ્રીની ગ્રાન્ટ મેળવવાના દિવ્યાંગ વ્યક્તિને પ્રવેશમાં ૫%ની અનામતની જોગવાઈ રાખવા તેમજ યુનિવર્સિટી દ્વારા થયેલ પરિપત્રની નકલ આ સાથે રજુ કરેલ છે. રજુ કરેલ પરિપત્ર જોતા જેમાં સૌરાષ્ટ્ર યુનિવર્સિટીના પરિપત્ર હોય તેમ જણાતું નથી. પરંતુ ફક્ત પત્ર દ્વારા નક્કી કરવામાં આવેલ હોય તેમ જણાય છે. તો આ બાબતે પરિપત્ર (ઠરાવ) કરી જાહેર કરવાનો રહે. જેથી સૌરાષ્ટ્ર યુનિવર્સિટીએ પરિપત્ર (ઠરાવ) કરી અત્રેની કોર્ટને જાણ કરવા સૂચના આપવામાં આવી.

સાક્ષરતા અને નિયામકની કચેરીનો ઠરાવ ક્રમાંકઃ સનશ/૨૦૧૯-૨૦/જીઓઇ/ચ તા.૦૬/૧૧/૨૦૧૯ નાં પરિપત્ર રજુ કરવામાં આવેલ છે. જે પરિપત્ર જોતા કેન્દ્ર પુરસ્કૃત સાક્ષર ભારત યોજના સને ૨૦૦૯-૧૦ થી અમલમાં હતી અને રાજ્ય પુરસ્કૃત સરસ્વતી યાત્રા યોજના સને ૨૦૧૦-૧૧થી અમલમાં હતી. જે યોજનામાં "THE RIGHTS OF PERSONS WITH DISABILITIES ACT – 2016" ની કલમ નંબર ૧૮ પ્રૌઢ શિક્ષણ અંતર્ગત દિવ્યાંગ નિરક્ષરો માટે કોઇ જોગવાઇ કરવામાં આવેલ ન હતી. હાલમાં આ બંને યોજનાઓ સ્થગિત કરવામાં આવેલ છે.

આમ, ઉપરોક્ત પરિપત્ર જોતાં જણાય છે કે, દિવ્યાંગજનો માટે કોઈ ૫% અનામતની જોગવાઇ કરવામાં આવેલ નથી. તો આ બાબતે જોગવાઈ કરી ઠરાવ કરી અત્રેની કોર્ટને જાણ કરવાની સુચના આપવામાં આવી.

સદર કામે મહારાજા કૃષ્ણકુમારસિંહજી ભાવનગર યુનિવર્સિટી દ્વારા પત્ર ક્રમાંક નંબર ક્રમાંક જોડાણ/૪૫૪/ઇ-મેઇલ/૨૦૨૧ તા.૦૨/૦૭/૨૦૨૧ નાં પત્ર દ્વારા જણાવેલ કે,"THE RIGHTS OF PERSONS WITH DISABILITIES ACT – 2016" ની કલમ ૩૨ મુજબ પ્રવેશ પ્રક્રિયામાં 5%

બેન્ચમાર્ક દિવ્યાંગજનો માટે અનામતનો લાભ આપવાની બાબત ઉક્ત સંદર્ભથી મળેલ એક્ઝિક્યુટિવ કાઉન્સિલની સભામાં રજુઆત નીચે મુજબનો ઠરાવ થયેલ છે.

આમ ઉપરોક્ત પત્ર જોતા દિવ્યાંગજનો માટે મહારાજા કૃષ્ણકુમારસિંહજી ભાવનગર યુનિવર્સિટી જે કામગીરી કરે છે તે કાયદા મુજબ યોગ્ય છે. જે કાયદાની અમલવારી કરેલ છે.

મહારાજા સયાજીરાવ યુનિવર્સિટી વડોદરાએ કોઈ જવાબ રજુ કરેલ નથી. જેથી દિવ્યાંગજનો માટે તે ઠરાવ કરેલ છે કે કેમ? તે સ્પષ્ટ થતું નથી. તો મહારાજા સયાજીરાવ યુનિવર્સિટી "THE RIGHTS OF PERSONS WITH DISABILITIES ACT - 2016" મુજબ દિવ્યાંગજનો માટે ૫% રિઝર્વેશન રાખવાનો ઠરાવ કરવાની સૂચના આપવામાં આવી.

આમ તમામ બાબતો ધ્યાને લઇ હું નીચે મુજબનો આદેશ કરૂ છું.

હુકમ –

"THE RIGHT OF PERSONS WITH DISABILITES ACT- 2016" મુજબ દિવ્યાંગજનો (માન્ય પ્રમાણપત્ર ધરાવતા) વિવિધ પ્રકારની કલ્યાણલક્ષી યોજનાઓ, સ્કીમોમાં તથા લાભોમાં તથા એડમીશનમાં ૫% રિઝર્વેશન આપવું અને તેના પાલન માટે પૂરતી વ્યવસ્થા ગોઠવી, તથા તે બાબતે શિક્ષણ વિભાગ તથા તમામ શૈક્ષણિક સંસ્થાઓ (ગ્રાન્ટ-ઇન-એઇડ) તથા તમામ યુનિવર્સિટીઓએ ઠરાવ કરી દિન-૯૦માં આધાર પુરાવા અત્રેની કોર્ટને મોકલી આપવા હુકમ કરવામાં આવે છે.

"THE RIGHT OF PERSONS WITH DISABILITES ACT- 2016" ની કલમ-૩૪ મુજબ તથા ગુજરાત સરકારશ્રીના, સામાન્ય વહિવટ વિભાગ દ્વારા ઠરાવ ક્રમાંક.સીઆરઆર-૧૦૨૦૧૭-૧૨૨૬૩૯-ગ,૨, તા.૧૭/૯/૨૦૨૧ મુજબ દિવ્યાંગજનો માટે દરેક ભરતીમાં ૪% અનામતની વ્યવસ્થા કરવી, તેમજ સુગમ્ય ભારત હેઠળ જે સુવિધાઓ આપવાની નક્કી કરેલ છે, તે તમામ સુવિધાઓ જેવી કે ટોઇલેટ, રેમ્પ, રેલીંગ, પાર્કિંગ વગેરેની વ્યવસ્થા તમામ શૈક્ષણિક

સંસ્થાઓ (ગ્રાન્ટ-ઇન-એઇડ) તથા તમામ યુનિવર્સિટીઓએ કરી દિન-૯૦માં આધાર પુરાવા (ફોટો ગ્રાફ) સાથે અત્રેની કોર્ટને મોકલી આપવા હુકમ કરવામાં આવે છે.

આ સાથે પ્રસ્તુત કેસનો નિકાલ કરવામાં આવે છે.

(વી.જે.રાજપૂત)
કોર્ટ ઓફ કમિશ્નર
(દિવ્યાંગ વ્યક્તિઓ માટેના)

રવાના કર્યુ

(બી.જે.મેનવાલે)
નાયબ કમિશ્નર
(દિવ્યાંગ વ્યક્તિઓ માટેના)

પ્રતિશ્રી,

1. અગ્ર સચિવશ્રી, શિક્ષણ વિભાગ, બ્લોકનં.૫/૭, સરદારભવન, સચિવાલય, ગાંધીનગર.
2. સચિવશ્રી, ગુજરાત માધ્યમિક અને ઉચ્ચતર માધ્યમિક શિક્ષણ બોર્ડ, સેકટર-૧૦-બી, જીવરાજ મહેતા ભવન પાસે, ગાંધીનગર.
3. નિયામકશ્રી, ટેકનીકલ શિક્ષણ કમિશ્નરશ્રીની કચેરી, બ્લોક નં.૨/૬, કર્મયોગી ભવન, સેકટર-૧૦-એ, ગાંધીનગર.
4. નિયામકશ્રી, પ્રાથમિક શિક્ષણ નિયામકની કચેરી, બ્લોકનં.૧૨/૧, ડો.જીવરાજ મહેતા ભવન, ગાંધીનગર.
5. કમિશ્નરશ્રી, ઉચ્ચ શિક્ષણ કમિશ્નરશ્રીની કચેરી, બ્લોક નં.૧૨/૨, ડો.જીવરાજ મહેતા ભવન, ગાંધીનગર.
6. નિયામકશ્રી, કમિશ્નર શાળાઓની કચેરી, બ્લોકનં.૯/૧, ડો.જીવરાજ મહેતા ભવન,ગાંધીનગર.
7. રજીસ્ટ્રારશ્રી, વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સીટી, સુરત.
8. રજીસ્ટ્રારશ્રી, શ્રી સોમનાથ સંસ્કૃત યુનિવર્સીટી, વેરાવળ, જુનાગઢ.
9. રજીસ્ટ્રારશ્રી, સરદાર પટેલ યુનિવર્સીટી, વલ્લભ વિદ્યાનગર, આણંદ.
10. રજીસ્ટ્રારશ્રી, ગુજરાત યુનિવર્સીટી, અમદાવાદ..
11. રજીસ્ટ્રારશ્રી, ભકત કવિ નરસિંહ મહેતા યુનિવર્સીટી, જુનાગઢ.

12. રજીસ્ટ્રારશ્રી, શ્રી ગોવિંદ ગુરૂ યુનિવર્સીટી, ગોધરા.

13. રજીસ્ટ્રારશ્રી, ક્રાંતિગુરૂ શ્યામજી કૃષ્ણવર્મા કચ્છ યુનિવર્સીટી, કચ્છ(ભુજ).

14. રજીસ્ટ્રારશ્રી, ચીલ્ડ્રન્સ યુનિવર્સીટી, સેકટર-૨૦, ગાંધીનગર.

15. રજીસ્ટ્રારશ્રી, ડો.બાબાસાહેબ આંબેડકર ઓપન યુનિવર્સીટી, અમદાવાદ.

16. રજીસ્ટ્રારશ્રી, હેમચંદ્રાચાર્ય ઉત્તર ગુજરાત યુનિવર્સીટી, પાટણ.

17. રજીસ્ટ્રારશ્રી, સૌરાષ્ટ્ર યુનિવર્સીટી, રાજકોટ.

18. નિયામકશ્રી, સાક્ષરતા અને નિરંતર શિક્ષણ નિયામકની કચેરી, બ્લોક નં.૧૨/૩, ડો.જીવરાજ મહેતા ભવન, ગાંધીનગર.

19. રજીસ્ટ્રારશ્રી, ઇન્ડીયન ઇન્સ્ટીટયુટ ઓફ ટીચર્સ એજયુકેશન, સેકટર-૧૫, ગાંધીનગર.

20. રજીસ્ટ્રારશ્રી, મહારાજા કૃષ્ણકુમારસિંહજી ભાવનગર યુનિવર્સીટી, ભાવનગર.

21. રજીસ્ટ્રારશ્રી, મહારાજા સયાજીરાવ યુનિવર્સીટી, વડોદરા.

रजिस्ट्री सं॰ डी॰ एल॰—(एन)04/0007/2003—16 REGISTERED NO. DL—(N)04/0007/2003—16

भारत का राजपत्र
The Gazette of India

असाधारण
EXTRAORDINARY
भाग II — खण्ड 1
PART II — Section 1
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PUBLISHED BY AUTHORITY

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इस भाग में भिन्न पृष्ठ संख्या दी जाती है जिससे कि यह अलग संकलन के रूप में रखा जा सके।
Separate paging is given to this Part in order that it may be filed as a separate compilation.

MINISTRY OF LAW AND JUSTICE
(Legislative Department)

New Delhi, the 28*th December,* 2016/*Pausha* 17, 1938 (*Saka*)

The following Act of Parliament received the assent of the President on the 27th December, 2016, and is hereby published for general information:—

THE RIGHTS OF PERSONS WITH DISABILITIES ACT, 2016

(No. 49 of 2016)

[27*th December,* 2016]

An Act to give effect to the United Nations Convention on the Rights of Persons with Disabilities and for matters connected therewith or incidental thereto.

WHEREAS the United Nations General Assembly adopted its Convention on the Rights of Persons with Disabilities on the 13th day of December, 2006;

AND WHEREAS the aforesaid Convention lays down the following principles for empowerment of persons with disabilities,—

(*a*) respect for inherent dignity, individual autonomy including the freedom to make one's own choices, and independence of persons;

(*b*) non-discrimination;

(*c*) full and effective participation and inclusion in society;

(*d*) respect for difference and acceptance of persons with disabilities as part of human diversity and humanity;

(*e*) equality of opportunity;

(*f*) accessibility;

(*g*) equality between men and women;

(*h*) respect for the evolving capacities of children with disabilities and respect for the right of children with disabilities to preserve their identities;

AND WHEREAS India is a signatory to the said Convention;

AND WHEREAS India ratified the said Convention on the 1st day of October, 2007;

AND WHEREAS it is considered necessary to implement the Convention aforesaid.

BE it enacted by Parliament in the Sixty-seventh Year of the Republic of India as follows:—

CHAPTER I

PRELIMINARY

Short title and commencement.

1. *(1)* This Act may be called the Rights of Persons with Disabilities Act, 2016.

(*2*) It shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint.

Definitions.

2. In this Act, unless the context otherwise requires,—

(*a*) "appellate authority" means an authority notified under sub-section (*3*) of section 14 or sub-section (*1*) of section 53 or designated under sub-section (*1*) of section 59, as the case may be;

(*b*) "appropriate Government" means,—

(*i*) in relation to the Central Government or any establishment wholly or substantially financed by that Government, or a Cantonment Board constituted under the Cantonments Act, 2006, the Central Government; 41 of 2006.

(*ii*) in relation to a State Government or any establishment, wholly or substantially financed by that Government, or any local authority, other than a Cantonment Board, the State Government.

(*c*) "barrier'' means any factor including communicational, cultural, economic, environmental, institutional, political, social, attitudinal or structural factors which hampers the full and effective participation of persons with disabilities in society;

(*d*) "care-giver" means any person including parents and other family Members who with or without payment provides care, support or assistance to a person with disability;

(*e*) "certifying authority" means an authority designated under sub-section (*1*) of section 57;

(*f*) "communication" includes means and formats of communication, languages, display of text, Braille, tactile communication, signs, large print, accessible multimedia, written, audio, video, visual displays, sign language, plain-language, human-reader, augmentative and alternative modes and accessible information and communication technology;

(*g*) "competent authority" means an authority appointed under section 49;

(*h*) "discrimination" in relation to disability, means any distinction, exclusion, restriction on the basis of disability which is the purpose or effect of impairing or nullifying the recognition, enjoyment or exercise on an equal basis with others of all human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field and includes all forms of discrimination and denial of reasonable accommodation;

(*i*) "establishment" includes a Government establishment and private establishment;

(*j*) "Fund" means the National Fund constituted under section 86;

(*k*) "Government establishment" means a corporation established by or under a Central Act or State Act or an authority or a body owned or controlled or aided by the Government or a local authority or a Government company as defined in section 2 of the Companies Act, 2013 and includes a Department of the Government;

18 of 2013.

(*l*) "high support" means an intensive support, physical, psychological and otherwise, which may be required by a person with benchmark disability for daily activities, to take independent and informed decision to access facilities and participating in all areas of life including education, employment, family and community life and treatment and therapy;

(*m*) "inclusive education" means a system of education wherein students with and without disability learn together and the system of teaching and learning is suitably adapted to meet the learning needs of different types of students with disabilities;

(*n*) "information and communication technology" includes all services and innovations relating to information and communication, including telecom services, web based services, electronic and print services, digital and virtual services;

(*o*) "institution" means an institution for the reception, care, protection, education, training, rehabilitation and any other activities for persons with disabilities;

(*p*) "local authority" means a Municipality or a Panchayat, as defined in clause (*e*) and clause (*f*) of article 243P of the Constitution; a Cantonment Board constituted under the Cantonments Act, 2006; and any other authority established under an Act of Parliament or a State Legislature to administer the civic affairs;

41 of 2006.

(*q*) "notification" means a notification published in the Official Gazette and the expression "notify" or "notified" shall be construed accordingly;

(*r*) "person with benchmark disability" means a person with not less than forty per cent. of a specified disability where specified disability has not been defined in measurable terms and includes a person with disability where specified disability has been defined in measurable terms, as certified by the certifying authority;

(*s*) "person with disability" means a person with long term physical, mental, intellectual or sensory impairment which, in interaction with barriers, hinders his full and effective participation in society equally with others;

(*t*) "person with disability having high support needs" means a person with benchmark disability certified under clause (*a*) of sub-section (*2*) of section 58 who needs high support;

(*u*) "prescribed" means prescribed by rules made under this Act;

(*v*) "private establishment" means a company, firm, cooperative or other society, associations, trust, agency, institution, organisation, union, factory or such other establishment as the appropriate Government may, by notification, specify;

(*w*) "public building" means a Government or private building, used or accessed by the public at large, including a building used for educational or vocational purposes, workplace, commercial activities, public utilities, religious, cultural, leisure or recreational activities, medical or health services, law enforcement agencies, reformatories or judicial foras, railway stations or platforms, roadways bus stands or terminus, airports or waterways;

(*x*) "public facilities and services" includes all forms of delivery of services to the public at large, including housing, educational and vocational trainings, employment

and career advancement, shopping or marketing, religious, cultural, leisure or recreational, medical, health and rehabilitation, banking, finance and insurance, communication, postal and information, access to justice, public utilities, transportation;

(*y*) "reasonable accommodation" means necessary and appropriate modification and adjustments, without imposing a disproportionate or undue burden in a particular case, to ensure to persons with disabilities the enjoyment or exercise of rights equally with others;

(*z*) "registered organisation" means an association of persons with disabilities or a disabled person organisation, association of parents of persons with disabilities, association of persons with disabilities and family members, or a voluntary or non-governmental or charitable organisation or trust, society, or non-profit company working for the welfare of the persons with disabilities, duly registered under an Act of Parliament or a State Legislature;

(*za*) "rehabilitation" refers to a process aimed at enabling persons with disabilities to attain and maintain optimal, physical, sensory, intellectual, psychological environmental or social function levels;

(*zb*) "Special Employment Exchange" means any office or place established and maintained by the Government for the collection and furnishing of information, either by keeping of registers or otherwise, regarding—

(*i*) persons who seek to engage employees from amongst the persons with disabilities;

(*ii*) persons with benchmark disability who seek employment;

(*iii*) vacancies to which persons with benchmark disabilities seeking employment may be appointed;

(*zc*) "specified disability" means the disabilities as specified in the Schedule;

(*zd*) "transportation systems" includes road transport, rail transport, air transport, water transport, para transit systems for the last mile connectivity, road and street infrastructure, etc.;

(*ze*) "universal design" means the design of products, environments, programmes and services to be usable by all people to the greatest extent possible, without the need for adaptation or specialised design and shall apply to assistive devices including advanced technologies for particular group of persons with disabilities.

CHAPTER II

RIGHTS AND ENTITLEMENTS

Equality and non-discrimination.

3. (*1*) The appropriate Government shall ensure that the persons with disabilities enjoy the right to equality, life with dignity and respect for his or her integrity equally with others.

(*2*) The appropriate Government shall take steps to utilise the capacity of persons with disabilities by providing appropriate environment.

(*3*) No person with disability shall be discriminated on the ground of disability, unless it is shown that the impugned act or omission is a proportionate means of achieving a legitimate aim.

(*4*) No person shall be deprived of his or her personal liberty only on the ground of disability.

(*5*) The appropriate Government shall take necessary steps to ensure reasonable accommodation for persons with disabilities.

Women and children with disabilities.

4. (*1*) The appropriate Government and the local authorities shall take measures to ensure that the women and children with disabilities enjoy their rights equally with others.

(*2*) The appropriate Government and local authorities shall ensure that all children with disabilities shall have right on an equal basis to freely express their views on all matters affecting them and provide them appropriate support keeping in view their age and disability.".

Community life.

5. (*1*) The persons with disabilities shall have the right to live in the community.

(*2*) The appropriate Government shall endeavour that the persons with disabilities are,—

(*a*) not obliged to live in any particular living arrangement; and

(*b*) given access to a range of in-house, residential and other community support services, including personal assistance necessary to support living with due regard to age and gender.

Protection from cruelty and inhuman treatment.

6. (*1*) The appropriate Government shall take measures to protect persons with disabilities from being subjected to torture, cruel, inhuman or degrading treatment.

(*2*) No person with disability shall be a subject of any research without,—

(*i*) his or her free and informed consent obtained through accessible modes, means and formats of communication; and

(*ii*) prior permission of a Committee for Research on Disability constituted in the prescribed manner for the purpose by the appropriate Government in which not less than half of the Members shall themselves be either persons with disabilities or Members of the registered organisation as defined under clause (*z*) of section 2.

Protection from abuse, violence and exploitation.

7. (*1*) The appropriate Government shall take measures to protect persons with disabilities from all forms of abuse, violence and exploitation and to prevent the same, shall—

(*a*) take cognizance of incidents of abuse, violence and exploitation and provide legal remedies available against such incidents;

(*b*) take steps for avoiding such incidents and prescribe the procedure for its reporting;

(*c*) take steps to rescue, protect and rehabilitate victims of such incidents; and

(*d*) create awareness and make available information among the public.

(*2*) Any person or registered organisation who or which has reason to believe that an act of abuse, violence or exploitation has been, or is being, or is likely to be committed against any person with disability, may give information about it to the Executive Magistrate within the local limits of whose jurisdiction such incidents occur.

(*3*) The Executive Magistrate on receipt of such information, shall take immediate steps to stop or prevent its occurrence, as the case may be, or pass such order as he deems fit for the protection of such person with disability including an order—

(*a*) to rescue the victim of such act, authorising the police or any organisation working for persons with disabilities to provide for the safe custody or rehabilitation of such person, or both, as the case may be;

(*b*) for providing protective custody to the person with disability, if such person so desires;

(*c*) to provide maintenance to such person with disability.

(*4*) Any police officer who receives a complaint or otherwise comes to know of abuse, violence or exploitation towards any person with disability shall inform the aggrieved person of—

(*a*) his or her right to apply for protection under sub-section (*2*) and the particulars of the Executive Magistrate having jurisdiction to provide assistance;

(*b*) the particulars of the nearest organisation or institution working for the rehabilitation of persons with disabilities;

(*c*) the right to free legal aid; and

(*d*) the right to file a complaint under the provisions of this Act or any other law dealing with such offence:

Provided that nothing in this section shall be construed in any manner as to relieve the police officer from his duty to proceed in accordance with law upon receipt of information as to the commission of a cognizable offence.

(*5*) If the Executive Magistrate finds that the alleged act or behaviour constitutes an offence under the Indian Penal Code, or under any other law for the time being in force, he may forward the complaint to that effect to the Judicial or Metropolitan Magistrate, as the case may be, having jurisdiction in the matter. 45 of 1860.

Protection and safety.

8. (*1*) The persons with disabilities shall have equal protection and safety in situations of risk, armed conflict, humanitarian emergencies and natural disasters.

(*2*) The National Disaster Management Authority and the State Disaster Management Authority shall take appropriate measures to ensure inclusion of persons with disabilities in its disaster management activities as defined under clause (*e*) of section 2 of the Disaster Management Act, 2005 for the safety and protection of persons with disabilities. 53 of 2005.

(*3*) The District Disaster Management Authority constituted under section 25 of the Disaster Management Act, 2005 shall maintain record of details of persons with disabilities in the district and take suitable measures to inform such persons of any situations of risk so as to enhance disaster preparedness. 53 of 2005.

(*4*) The authorities engaged in reconstruction activities subsequent to any situation of risk, armed conflict or natural disasters shall undertake such activities, in consultation with the concerned State Commissioner, in accordance with the accessibility requirements of persons with disabilities.

Home and family.

9. (*1*) No child with disability shall be separated from his or her parents on the ground of disability except on an order of competent court, if required, in the best interest of the child.

(*2*) Where the parents are unable to take care of a child with disability, the competent court shall place such child with his or her near relations, and failing that within the community in a family setting or in exceptional cases in shelter home run by the appropriate Government or non-governmental organisation, as may be required.

Reproductive rights.

10. (*1*) The appropriate Government shall ensure that persons with disabilities have access to appropriate information regarding reproductive and family planning.

(*2*) No person with disability shall be subject to any medical procedure which leads to infertility without his or her free and informed consent.

Accessibility in voting.

11. The Election Commission of India and the State Election Commissions shall ensure that all polling stations are accessible to persons with disabilities and all materials related to the electoral process are easily understandable by and accessible to them.

Access to justice.

12. (*1*) The appropriate Government shall ensure that persons with disabilities are able to exercise the right to access any court, tribunal, authority, commission or any other body having judicial or quasi-judicial or investigative powers without discrimination on the basis of disability.

(*2*) The appropriate Government shall take steps to put in place suitable support measures for persons with disabilities specially those living outside family and those disabled requiring high support for exercising legal rights.

(*3*) The National Legal Services Authority and the State Legal Services Authorities constituted under the Legal Services Authorities Act, 1987 shall make provisions including reasonable accommodation to ensure that persons with disabilities have access to any scheme, programme, facility or service offered by them equally with others.

39 of 1987.

(*4*) The appropriate Government shall take steps to—

(*a*) ensure that all their public documents are in accessible formats;

(*b*) ensure that the filing departments, registry or any other office of records are supplied with necessary equipment to enable filing, storing and referring to the documents and evidence in accessible formats; and

(*c*) make available all necessary facilities and equipment to facilitate recording of testimonies, arguments or opinion given by persons with disabilities in their preferred language and means of communication.

Legal capacity.

13. (*1*) The appropriate Government shall ensure that the persons with disabilities have right, equally with others, to own or inherit property, movable or immovable, control their financial affairs and have access to bank loans, mortgages and other forms of financial credit.

(*2*) The appropriate Government shall ensure that the persons with disabilities enjoy legal capacity on an equal basis with others in all aspects of life and have the right to equal recognition everywhere as any other person before the law.

(*3*) When a conflict of interest arises between a person providing support and a person with disability in a particular financial, property or other economic transaction, then such supporting person shall abstain from providing support to the person with disability in that transaction:

Provided that there shall not be a presumption of conflict of interest just on the basis that the supporting person is related to the person with disability by blood, affinity or adoption.

(*4*) A person with disability may alter, modify or dismantle any support arrangement and seek the support of another:

Provided that such alteration, modification or dismantling shall be prospective in nature and shall not nullify any third party transaction entered into by the person with disability with the aforesaid support arrangement.

(*5*) Any person providing support to the person with disability shall not exercise undue influence and shall respect his or her autonomy, dignity and privacy.

Provision for guardianship.

14. *(1)* Notwithstanding anything contained in any other law for the time being in force, on and from the date of commencement of this Act, where a district court or any designated authority, as notified by the State Government, finds that a person with disability, who had been provided adequate and appropriate support but is unable to take legally binding decisions, may be provided further support of a limited guardian to take legally binding decisions on his behalf in consultation with such person, in such manner, as may be prescribed by the State Government:

Provided that the District Court or the designated authority, as the case may be, may grant total support to the person with disability requiring such support or where the limited guardianship is to be granted repeatedly, in which case, the decision regarding the support to be provided shall be reviewed by the Court or the designated authority, as the case may be, to determine the nature and manner of support to be provided.

Explanation.—For the purposes of this sub-section, "limited guardianship" means a system of joint decision which operates on mutual understanding and trust between the guardian and the person with disability, which shall be limited to a specific period and for specific decision and situation and shall operate in accordance to the will of the person with disability.

(*2*) On and from the date of commencement of this Act, every guardian appointed under any provision of any other law for the time being in force, for a person with disability shall be deemed to function as a limited guardian.

(*3*) Any person with disability aggrieved by the decision of the designated authority appointing a legal guardian may prefer an appeal to such appellate authority, as may be notified by the State Government for the purpose.

Designation of authorities to support.

15. *(1)* The appropriate Government shall designate one or more authorities to mobilise the community and create social awareness to support persons with disabilities in exercise of their legal capacity.

(*2*) The authority designated under sub-section (*1*) shall take measures for setting up suitable support arrangements to exercise legal capacity by persons with disabilities living in institutions and those with high support needs and any other measures as may be required.

CHAPTER III

EDUCATION

Duty of educational institutions.

16. The appropriate Government and the local authorities shall endeavour that all educational institutions funded or recognised by them provide inclusive education to the children with disabilities and towards that end shall—

(*i*) admit them without discrimination and provide education and opportunities for sports and recreation activities equally with others;

(*ii*) make building, campus and various facilities accessible;

(*iii*) provide reasonable accommodation according to the individual's requirements;

(*iv*) provide necessary support individualised or otherwise in environments that maximise academic and social development consistent with the goal of full inclusion;

(*v*) ensure that the education to persons who are blind or deaf or both is imparted in the most appropriate languages and modes and means of communication;

(*vi*) detect specific learning disabilities in children at the earliest and take suitable pedagogical and other measures to overcome them;

(*vii*) monitor participation, progress in terms of attainment levels and completion of education in respect of every student with disability;

(*viii*) provide transportation facilities to the children with disabilities and also the attendant of the children with disabilities having high support needs.

Specific measures to promote and facilitate inclusive education.

17. The appropriate Government and the local authorities shall take the following measures for the purpose of section 16, namely:—

(*a*) to conduct survey of school going children in every five years for identifying children with disabilities, ascertaining their special needs and the extent to which these are being met:

Provided that the first survey shall be conducted within a period of two years from the date of commencement of this Act;

(*b*) to establish adequate number of teacher training institutions;

(*c*) to train and employ teachers, including teachers with disability who are qualified in sign language and Braille and also teachers who are trained in teaching children with intellectual disability;

(*d*) to train professionals and staff to support inclusive education at all levels of school education;

(*e*) to establish adequate number of resource centres to support educational institutions at all levels of school education;

(*f*) to promote the use of appropriate augmentative and alternative modes including means and formats of communication, Braille and sign language to supplement the use of one's own speech to fulfill the daily communication needs of persons with speech, communication or language disabilities and enables them to participate and contribute to their community and society;

(*g*) to provide books, other learning materials and appropriate assistive devices to students with benchmark disabilities free of cost up to the age of eighteen years;

(*h*) to provide scholarships in appropriate cases to students with benchmark disability;

(*i*) to make suitable modifications in the curriculum and examination system to meet the needs of students with disabilities such as extra time for completion of examination paper, facility of scribe or amanuensis, exemption from second and third language courses;

(*j*) to promote research to improve learning; and

(*k*) any other measures, as may be required.

Adult education.

18. The appropriate Government and the local authorities shall take measures to promote, protect and ensure participation of persons with disabilities in adult education and continuing education programmes equally with others.

CHAPTER IV

SKILL DEVELOPMENT AND EMPLOYMENT

Vocational training and self-employment.

19. (*1*) The appropriate Government shall formulate schemes and programmes including provision of loans at concessional rates to facilitate and support employment of persons with disabilities especially for their vocational training and self-employment.

(*2*) The schemes and programmes referred to in sub-section (*1*) shall provide for—

(*a*) inclusion of person with disability in all mainstream formal and non-formal vocational and skill training schemes and programmes;

(*b*) to ensure that a person with disability has adequate support and facilities to avail specific training;

(*c*) exclusive skill training programmes for persons with disabilities with active links with the market, for those with developmental, intellectual, multiple disabilities and autism;

(*d*) loans at concessional rates including that of microcredit;

(*e*) marketing the products made by persons with disabilities; and

(*f*) maintenance of disaggregated data on the progress made in the skill training and self-employment, including persons with disabilities.

Non-discrimination in employment.

20. (*1*) No Government establishment shall discriminate against any person with disability in any matter relating to employment:

Provided that the appropriate Government may, having regard to the type of work carried on in any establishment, by notification and subject to such conditions, if any, exempt any establishment from the provisions of this section.

(*2*) Every Government establishment shall provide reasonable accommodation and appropriate barrier free and conducive environment to employees with disability.

(*3*) No promotion shall be denied to a person merely on the ground of disability.

(*4*) No Government establishment shall dispense with or reduce in rank, an employee who acquires a disability during his or her service:

Provided that, if an employee after acquiring disability is not suitable for the post he was holding, shall be shifted to some other post with the same pay scale and service benefits:

Provided further that if it is not possible to adjust the employee against any post, he may be kept on a supernumerary post until a suitable post is available or he attains the age of superannuation, whichever is earlier.

(*5*) The appropriate Government may frame policies for posting and transfer of employees with disabilities.

Equal opportunity policy.

21. (*1*) Every establishment shall notify equal opportunity policy detailing measures proposed to be taken by it in pursuance of the provisions of this Chapter in the manner as may be prescribed by the Central Government.

(*2*) Every establishment shall register a copy of the said policy with the Chief Commissioner or the State Commissioner, as the case may be.

Maintenance of records.

22. (*1*) Every establishment shall maintain records of the persons with disabilities in relation to the matter of employment, facilities provided and other necessary information in compliance with the provisions of this Chapter in such form and manner as may be prescribed by the Central Government.

(*2*) Every employment exchange shall maintain records of persons with disabilities seeking employment.

(*3*) The records maintained under sub-section (*1*) shall be open to inspection at all reasonable hours by such persons as may be authorised in their behalf by the appropriate Government.

Appointment of Grievance Redressal Officer.

23. (*1*) Every Government establishment shall appoint a Grievance Redressal Officer for the purpose of section 19 and shall inform the Chief Commissioner or the State Commissioner, as the case may be, about the appointment of such officer.

(*2*) Any person aggrieved with the non-compliance of the provisions of section 20, may file a complaint with the Grievance Redressal Officer, who shall investigate it and shall take up the matter with the establishment for corrective action.

(*3*) The Grievance Redressal Officer shall maintain a register of complaints in the manner as may be prescribed by the Central Government, and every complaint shall be inquired within two weeks of its registration.

(*4*) If the aggrieved person is not satisfied with the action taken on his or her complaint, he or she may approach the District-Level Committee on disability.

CHAPTER V

SOCIAL SECURITY, HEALTH, REHABILITATION AND RECREATION

Social security.

24. *(1)* The appropriate Government shall within the limit of its economic capacity and development formulate necessary schemes and programmes to safeguard and promote the right of persons with disabilities for adequate standard of living to enable them to live independently or in the community:

Provided that the quantum of assistance to the persons with disabilities under such schemes and programmes shall be at least twenty-five per cent. higher than the similar schemes applicable to others.

(*2*) The appropriate Government while devising these schemes and programmes shall give due consideration to the diversity of disability, gender, age, and socio-economic status.

(*3*) The schemes under sub-section (*1*) shall provide for,—

(*a*) community centres with good living conditions in terms of safety, sanitation, health care and counselling;

(*b*) facilities for persons including children with disabilities who have no family or have been abandoned, or are without shelter or livelihood**;**

(*c*) support during natural or man-made disasters and in areas of conflict**;**

(*d*) support to women with disability for livelihood and for upbringing of their children;

(*e*) access to safe drinking water and appropriate and accessible sanitation facilities especially in urban slums and rural areas;

(*f*) provisions of aids and appliances, medicine and diagnostic services and corrective surgery free of cost to persons with disabilities with such income ceiling as may be notified;

(*g*) disability pension to persons with disabilities subject to such income ceiling as may be notified;

(*h*) unemployment allowance to persons with disabilities registered with Special Employment Exchange for more than two years and who could not be placed in any gainful occupation;

(*i*) care-giver allowance to persons with disabilities with high support needs;

(*j*) comprehensive insurance scheme for persons with disability, not covered under the Employees State Insurance Schemes, or any other statutory or Government-sponsored insurance schemes;

(*k*) any other matter which the appropriate Government may think fit.

Healthcare.

25. (*1*) The appropriate Government and the local authorities shall take necessary measures for the persons with disabilities to provide,—

(*a*) free healthcare in the vicinity specially in rural area subject to such family income as may be notified;

(*b*) barrier-free access in all parts of Government and private hospitals and other healthcare institutions and centres;

(*c*) priority in attendance and treatment.

(*2*) The appropriate Government and the local authorities shall take measures and make schemes or programmes to promote healthcare and prevent the occurrence of disabilities and for the said purpose shall—

(*a*) undertake or cause to be undertaken surveys, investigations and research concerning the cause of occurrence of disabilities;

(*b*) promote various methods for preventing disabilities;

(*c*) screen all the children at least once in a year for the purpose of identifying "at-risk" cases;

(*d*) provide facilities for training to the staff at the primary health centres;

(*e*) sponsor or cause to be sponsored awareness campaigns and disseminate or cause to be disseminated information for general hygiene, health and sanitation;

(*f*) take measures for pre-natal, perinatal and post-natal care of mother and child;

(*g*) educate the public through the pre-schools, schools, primary health centres, village level workers and *anganwadi* workers;

(*h*) create awareness amongst the masses through television, radio and other mass media on the causes of disabilities and the preventive measures to be adopted;

(*i*) healthcare during the time of natural disasters and other situations of risk;

(*j*) essential medical facilities for life saving emergency treatment and procedures; and

(*k*) sexual and reproductive healthcare especially for women with disability.

Insurance schemes.

26. The appropriate Government shall, by notification, make insurance schemes for their employees with disabilities.

Rehabilitation.

27. (*1*) The appropriate Government and the local authorities shall within their economic capacity and development, undertake or cause to be undertaken services and programmes of

rehabilitation, particularly in the areas of health, education and employment for all persons with disabilities.

(*2*) For the purposes of sub-section (*1*), the appropriate Government and the local authorities may grant financial assistance to non-Governmental Organisations.

(*3*) The appropriate Government and the local authorities, while formulating rehabilitation policies shall consult the non-Governmental Organisations working for the cause of persons with disabilities.

Research and development.

28. The appropriate Government shall initiate or cause to be initiated research and development through individuals and institutions on issues which shall enhance habilitation and rehabilitation and on such other issues which are necessary for the empowerment of persons with disabilities.

Culture and recreation.

29. The appropriate Government and the local authorities shall take measures to promote and protect the rights of all persons with disabilities to have a cultural life and to participate in recreational activities equally with others which include,—

(*a*) facilities, support and sponsorships to artists and writers with disability to pursue their interests and talents;

(*b*) establishment of a disability history museum which chronicles and interprets the historical experiences of persons with disabilities;

(*c*) making art accessible to persons with disabilities;

(*d*) promoting recreation centres, and other associational activities;

(*e*) facilitating participation in scouting, dancing, art classes, outdoor camps and adventure activities;

(*f*) redesigning courses in cultural and arts subjects to enable participation and access for persons with disabilities;

(*g*) developing technology, assistive devices and equipments to facilitate access and inclusion for persons with disabilities in recreational activities; and

(*h*) ensuring that persons with hearing impairment can have access to television programmes with sign language interpretation or sub-titles.

Sporting activities.

30. (*1*) The appropriate Government shall take measures to ensure effective participation in sporting activities of the persons with disabilities.

(*2*) The sports authorities shall accord due recognition to the right of persons with disabilities to participate in sports and shall make due provisions for the inclusion of persons with disabilities in their schemes and programmes for the promotion and development of sporting talents.

(*3*) Without prejudice to the provisions contained in sub-sections (*1*) and (*2*), the appropriate Government and the sports authorities shall take measures to,—

(*a*) restructure courses and programmes to ensure access, inclusion and participation of persons with disabilities in all sporting activities;

(*b*) redesign and support infrastructure facilities of all sporting activities for persons with disabilities;

(*c*) develop technology to enhance potential, talent, capacity and ability in sporting activities of all persons with disabilities;

(*d*) provide multi-sensory essentials and features in all sporting activities to ensure effective participation of all persons with disabilities;

(*e*) allocate funds for development of state of art sport facilities for training of persons with disabilities;

(*f*) promote and organise disability specific sporting events for persons with disabilities and also facilitate awards to the winners and other participants of such sporting events.

CHAPTER VI

SPECIAL PROVISIONS FOR PERSONS WITH BENCHMARK DISABIILITES

Free education for children with benchmark disabilities.

31. *(1)* Notwithstanding anything contained in the Rights of Children to Free and Compulsory Education Act, 2009, every child with benchmark disability between the age of six to eighteen years shall have the right to free education in a neighbourhood school, or in a special school, of his choice.

35 of 2009.

(*2*) The appropriate Government and local authorities shall ensure that every child with benchmark disability has access to free education in an appropriate environment till he attains the age of eighteen years.

Reservation in higher educational institutions.

32. *(1)* All Government institutions of higher education and other higher education institutions receiving aid from the Government shall reserve not less than five per cent. seats for persons with benchmark disabilities.

(*2*) The persons with benchmark disabilities shall be given an upper age relaxation of five years for admission in institutions of higher education.

Identification of posts for reservation.

33. The appropriate Government shall—

(*i*) identify posts in the establishments which can be held by respective category of persons with benchmark disabilities in respect of the vacancies reserved in accordance with the provisions of section 34;

(*ii*) constitute an expert committee with representation of persons with benchmark disabilities for identification of such posts; and

(*iii*) undertake periodic review of the identified posts at an interval not exceeding three years.

Reservation.

34. *(1)* Every appropriate Government shall appoint in every Government establishment, not less than four per cent. of the total number of vacancies in the cadre strength in each group of posts meant to be filled with persons with benchmark disabilities of which, one per cent. each shall be reserved for persons with benchmark disabilities under clauses (*a*), (*b*) and (*c*) and one per cent. for persons with benchmark disabilities under clauses (*d*) and (*e*), namely:—

(*a*) blindness and low vision;

(*b*) deaf and hard of hearing;

(*c*) locomotor disability including cerebral palsy, leprosy cured, dwarfism, acid attack victims and muscular dystrophy;

(*d*) autism, intellectual disability, specific learning disability and mental illness;

(*e*) multiple disabilities from amongst persons under clauses (*a*) to (*d*) including deaf-blindness in the posts identified for each disabilities:

Provided that the reservation in promotion shall be in accordance with such instructions as are issued by the appropriate Government from time to time:

Provided further that the appropriate Government, in consultation with the Chief Commissioner or the State Commissioner, as the case may be, may, having regard to the type of work carried out in any Government establishment, by notification and subject to such conditions, if any, as may be specified in such notifications exempt any Government establishment from the provisions of this section.

(*2*) Where in any recruitment year any vacancy cannot be filled up due to non-availability of a suitable person with benchmark disability or for any other sufficient reasons, such vacancy shall be carried forward in the succeeding recruitment year and if in the succeeding recruitment year also suitable person with benchmark disability is not available, it may first be filled by interchange among the five categories and only when there is no person with disability available for the post in that year, the employer shall fill up the vacancy by appointment of a person, other than a person with disability:

Provided that if the nature of vacancies in an establishment is such that a given category of person cannot be employed, the vacancies may be interchanged among the five categories with the prior approval of the appropriate Government.

(*3*) The appropriate Government may, by notification, provide for such relaxation of upper age limit for employment of persons with benchmark disability, as it thinks fit.

Incentives to employers in private sector.

35. The appropriate Government and the local authorities shall, within the limit of their economic capacity and development, provide incentives to employer in private sector to ensure that at least five per cent. of their work force is composed of persons with benchmark disability.

Special employment exchange.

36. The appropriate Government may, by notification, require that from such date, the employer in every establishment shall furnish such information or return as may be prescribed by the Central Government in relation to vacancies appointed for persons with benchmark disability that have occurred or are about to occur in that establishment to such special employment exchange as may be notified by the Central Government and the establishment shall thereupon comply with such requisition.

Special schemes and development programmes.

37. The appropriate Government and the local authorities shall, by notification, make schemes in favour of persons with benchmark disabilities, to provide,—

(*a*) five per cent. reservation in allotment of agricultural land and housing in all relevant schemes and development programmes, with appropriate priority to women with benchmark disabilities;

(*b*) five per cent. reservation in all poverty alleviation and various developmental schemes with priority to women with benchmark disabilities;

(*c*) five per cent. reservation in allotment of land on concessional rate, where such land is to be used for the purpose of promoting housing, shelter, setting up of occupation, business, enterprise, recreation centres and production centres.

CHAPTER VII

SPECIAL PROVISIONS FOR PERSONS WITH DISABILITIES WITH HIGH SUPPORT NEEDS

Special provisions for persons with disabilities with high support.

38. (*1*) Any person with benchmark disability, who considers himself to be in need of high support, or any person or organisation on his or her behalf, may apply to an authority, to be notified by the appropriate Government, requesting to provide high support.

(*2*) On receipt of an application under sub-section (*1*), the authority shall refer it to an Assessment Board consisting of such Members as may be prescribed by the Central Government.

(*3*) The Assessment Board shall assess the case referred to it under sub-section (*1*) in such manner as may be prescribed by the Central Government, and shall send a report to the authority certifying the need of high support and its nature.

(*4*) On receipt of a report under sub-section (*3*), the authority shall take steps to provide support in accordance with the report and subject to relevant schemes and orders of the appropriate Government in this behalf.

CHAPTER VIII

DUTIES AND RESPONSIBILITIES OF APPROPRIATE GOVERNMENTS

Awareness campaigns.

39. *(1)* The appropriate Government, in consultation with the Chief Commissioner or the State Commissioner, as the case may be, shall conduct, encourage, support or promote awareness campaigns and sensitisation programmes to ensure that the rights of the persons with disabilities provided under this Act are protected.

(*2*) The programmes and campaigns specified under sub-section (*1*) shall also,—

(*a*) promote values of inclusion, tolerance, empathy and respect for diversity;

(*b*) advance recognition of the skills, merits and abilities of persons with disabilities and of their contributions to the workforce, labour market and professional fee;

(*c*) foster respect for the decisions made by persons with disabilities on all matters related to family life, relationships, bearing and raising children;

(*d*) provide orientation and sensitisation at the school, college, University and professional training level on the human condition of disability and the rights of persons with disabilities;

(*e*) provide orientation and sensitisation on disabling conditions and rights of persons with disabilities to employers, administrators and co-workers;

(*f*) ensure that the rights of persons with disabilities are included in the curriculum in Universities, colleges and schools.

Accessibility.

40. The Central Government shall, in consultation with the Chief Commissioner, formulate rules for persons with disabilities laying down the standards of accessibility for the physical environment, transportation, information and communications, including appropriate technologies and systems, and other facilities and services provided to the public in urban and rural areas.

Access to transport.

41. *(1)* The appropriate Government shall take suitable measures to provide,—

(*a*) facilities for persons with disabilities at bus stops, railway stations and airports conforming to the accessibility standards relating to parking spaces, toilets, ticketing counters and ticketing machines;

(*b*) access to all modes of transport that conform the design standards, including retrofitting old modes of transport, wherever technically feasible and safe for persons with disabilities, economically viable and without entailing major structural changes in design;

(*c*) accessible roads to address mobility necessary for persons with disabilities.

(*2*) The appropriate Government shall develop schemes programmes to promote the personal mobility of persons with disabilities at affordable cost to provide for,—

(*a*) incentives and concessions;

(*b*) retrofitting of vehicles; and

(*c*) personal mobility assistance.

Access to information and communication technology.

42. The appropriate Government shall take measures to ensure that,—

(*i*) all contents available in audio, print and electronic media are in accessible format;

(*ii*) persons with disabilities have access to electronic media by providing audio description, sign language interpretation and close captioning;

(*iii*) electronic goods and equipment which are meant for every day use are available in universal design.

Consumer goods.

43. The appropriate Government shall take measures to promote development, production and distribution of universally designed consumer products and accessories for general use for persons with disabilities.

Mandatory observance of accessibility norms.

44. (*1*) No establishment shall be granted permission to build any structure if the building plan does not adhere to the rules formulated by the Central Government under section 40.

(*2*) No establishment shall be issued a certificate of completion or allowed to take occupation of a building unless it has adhered to the rules formulated by the Central Government.

Time limit for making existing infrastructure and premises accessible and action for that purpose.

45. (*1*) All existing public buildings shall be made accessible in accordance with the rules formulated by the Central Government within a period not exceeding five years from the date of notification of such rules:

Provided that the Central Government may grant extension of time to the States on a case to case basis for adherence to this provision depending on their state of preparedness and other related parameters.

(*2*) The appropriate Government and the local authorities shall formulate and publish an action plan based on prioritisation, for providing accessibility in all their buildings and spaces providing essential services such as all primary health centres, civil hospitals, schools, railway stations and bus stops.

Time limit for accessibility by service providers.

46. The service providers whether Government or private shall provide services in accordance with the rules on accessibility formulated by the Central Government under section 40 within a period of two years from the date of notification of such rules:

Provided that the Central Government in consultation with the Chief Commissioner may grant extension of time for providing certain category of services in accordance with the said rules.

Human resource development.

47. (*1*) Without prejudice to any function and power of Rehabilitation Council of India constituted under the Rehabilitation Council of India Act, 1992, the appropriate Government shall endeavour to develop human resource for the purposes of this Act and to that end shall,— 34 of 1992.

(*a*) mandate training on disability rights in all courses for the training of Panchayati Raj Members, legislators, administrators, police officials, judges and lawyers;

(*b*) induct disability as a component for all education courses for schools, colleges and University teachers, doctors, nurses, para-medical personnel, social welfare officers, rural development officers, asha workers, *anganwadi* workers, engineers, architects, other professionals and community workers;

(*c*) initiate capacity building programmes including training in independent living and community relationships for families, members of community and other stakeholders and care providers on care giving and support;

(*d*) ensure independence training for persons with disabilities to build community relationships on mutual contribution and respect;

(*e*) conduct training programmes for sports teachers with focus on sports, games, adventure activities;

(*f*) any other capacity development measures as may be required.

(*2*) All Universities shall promote teaching and research in disability studies including establishment of study centres for such studies.

(*3*) In order to fulfil the obligation stated in sub-section (*1*), the appropriate Government shall in every five years undertake a need based analysis and formulate plans for the recruitment, induction, sensitisation, orientation and training of suitable personnel to undertake the various responsibilities under this Act.

Social audit.

48. The appropriate Government shall undertake social audit of all general schemes and programmes involving the persons with disabilities to ensure that the scheme and programmes do not have an adverse impact upon the persons with disabilities and need the requirements and concerns of persons with disabilities.

CHAPTER IX

REGISTRATION OF INSTITUTIONS FOR PERSONS WITH DISABILITIES AND GRANTS TO SUCH INSTITUTIONS

Competent authority.

49. The State Government shall appoint an authority as it deems fit to be a competent authority for the purposes of this Chapter.

Registration.

50. Save as otherwise provided under this Act, no person shall establish or maintain any institution for persons with disabilities except in accordance with a certificate of registration issued in this behalf by the competent authority:

Provided that an institution for care of mentally ill persons, which holds a valid licence under section 8 of the Mental Health Act, 1987 or any other Act for the time being in force, shall not be required to be registered under this Act. 14 of 1987.

Application and grant of certificate of registration.

51. (*1*) Every application for a certificate of registration shall be made to the competent authority in such form and in such manner as may be prescribed by the State Government.

(*2*) On receipt of an application under sub-section (*1*), the competent authority shall make such enquiries as it may deem fit and on being satisfied that the applicant has complied with the requirements of this Act and the rules made thereunder, it shall grant a certificate of registration to the applicant within a period of ninety days of receipt of application and if not satisfied, the competent authority shall, by order, refuse to grant the certificate applied for:

Provided that before making any order refusing to grant a certificate, the competent authority shall give the applicant a reasonable opportunity of being heard and every order of refusal to grant a certificate shall be communicated to the applicant in writing.

(*3*) No certificate of registration shall be granted under sub-section (*2*) unless the institution with respect to which an application has been made is in a position to provide such facilities and meet such standards as may be prescribed by the State Government.

(*4*) The certificate of registration granted under sub-section (*2*) ,—

(*a*) shall, unless revoked under section 52 remain in force for such period as may be prescribed by the State Government;

(*b*) may be renewed from time to time for a like period; and

(*c*) shall be in such form and shall be subject to such conditions as may be prescribed by the State Government.

(*5*) An application for renewal of a certificate of registration shall be made not less than sixty days before the expiry of the period of validity.

(*6*) A copy of the certificate of registration shall be displayed by the institution in a conspicuous place.

(*7*) Every application made under sub-section (*1*) or sub-section (*5*) shall be disposed of by the competent authority within such period as may be prescribed by the State Government.

Revocation of registration.

52. (*1*) The competent authority may, if it has reason to believe that the holder of a certificate of registration granted under sub-section (*2*) of section 51 has,—

(*a*) made a statement in relation to any application for the issue or renewal of the certificate which is incorrect or false in material particulars; or

(*b*) committed or has caused to be committed any breach of rules or any conditions subject to which the certificate was granted,

it may, after making such inquiry, as it deems fit, by order, revoke the certificate:

Provided that no such order shall be made until an opportunity is given to the holder of the certificate to show cause as to why the certificate of registration shall not be revoked.

(*2*) Where a certificate of registration in respect of an institution has been revoked under sub-section (*1*), such institution shall cease to function from the date of such revocation:

Provided that where an appeal lies under section 53 against the order of revocation, such institution shall cease to function,—

(*a*) where no appeal has been preferred immediately on the expiry of the period prescribed for the filing of such appeal; or

(*b*) where such appeal has been preferred, but the order of revocation has been upheld, from the date of the order of appeal.

(*3*) On the revocation of a certificate of registration in respect of an institution, the competent authority may direct that any person with disability who is an inmate of such institution on the date of such revocation, shall be—

(*a*) restored to the custody of his or her parent, spouse or lawful guardian, as the case may be; or

(*b*) transferred to any other institution specified by the competent authority.

(*4*) Every institution which holds a certificate of registration which is revoked under this section shall, immediately after such revocation, surrender such certificate to the competent authority.

Appeal.

53. (*1*) Any person aggrieved by the order of the competent authority refusing to grant a certificate of registration or revoking a certificate of registration may, within such period as may be prescribed by the State Government, prefer an appeal to such appellate authority, as may be notified by the State Government against such refusal or revocation.

(*2*) The order of the appellate authority on such appeal shall be final.

Act not to apply to institutions established or maintained by Central or State Government.

54. Nothing contained in this Chapter shall apply to an institution for persons with disabilities established or maintained by the Central Government or a State Government.

Assistance to registered institutions.

55. The appropriate Government may within the limits of their economic capacity and development, grant financial assistance to registered institutions to provide services and to implement the schemes and programmes in pursuance of the provisions of this Act.

CHAPTER X

CERTIFICATION OF SPECIFIED DISABILITIES

Guidelines for assessment of specified disabilities.

56. The Central Government shall notify guidelines for the purpose of assessing the extent of specified disability in a person.

Designation of certifying authorities.

57. *(1)* The appropriate Government shall designate persons, having requisite qualifications and experience, as certifying authorities, who shall be competent to issue the certificate of disability.

(*2*) The appropriate Government shall also notify the jurisdiction within which and the terms and conditions subject to which, the certifying authority shall perform its certification functions.

Procedure for certification.

58. *(1)* Any person with specified disability, may apply, in such manner as may be prescribed by the Central Government, to a certifying authority having jurisdiction, for issuing of a certificate of disability.

(*2*) On receipt of an application under sub-section (*1*), the certifying authority shall assess the disability of the concerned person in accordance with relevant guidelines notified under section 56, and shall, after such assessment, as the case may be,—

(*a*) issue a certificate of disability to such person, in such form as may be prescribed by the Central Government;

(*b*) inform him in writing that he has no specified disability.

(*3*) The certificate of disability issued under this section shall be valid across the country.

Appeal against a decision of certifying authority.

59. *(1)* Any person aggrieved with decision of the certifying authority, may appeal against such decision, within such time and in such manner as may be prescribed by the State Government, to such appellate authority as the State Government may designate for the purpose.

(*2*) On receipt of an appeal, the appellate authority shall decide the appeal in such manner as may be prescribed by the State Government.

CHAPTER XI

CENTRAL AND STATE ADVISORY BOARDS ON DISABILITY AND DISTRICT LEVEL COMMITTEE

Constitution of Central Advisory Board on Disability.

60. *(1)* The Central Government shall, by notification, constitute a body to be known as the Central Advisory Board on Disability to exercise the powers conferred on, and to perform the functions assigned to it, under this Act.

(*2*) The Central Advisory Board shall consist of,—

(*a*) the Minister in charge of Department of Disability Affairs in the Central Government, Chairperson, *ex officio*;

(*b*) the Minister of State in charge dealing with Department of Disability Affairs in the Ministry in the Central Government, Vice Chairperson, *ex officio*;

(*c*) three Members of Parliament, of whom two shall be elected by Lok Sabha and one by the Rajya Sabha, Members, *ex officio*;

(*d*) the Ministers in charge of Disability Affairs of all States and Administrators or Lieutenant Governors of the Union territories, Members, *ex officio*;

(*e*) Secretaries to the Government of India in charge of the Ministries or Departments of Disability Affairs, Social Justice and Empowerment, School Education and Literacy, and Higher Education, Women and Child Development, Expenditure, Personnel and Training, Administrative Reforms and Public Grievances, Health and Family Welfare, Rural Development, Panchayati Raj, Industrial Policy and Promotion, Urban Development, Housing and Urban Poverty Alleviation, Science and Technology, Communications and Information Technology, Legal Affairs, Public Enterprises, Youth Affairs and Sports, Road Transport and Highways and Civil Aviation, Members, *ex officio*;

(*f*) Secretary, National Institute of Transforming India (NITI) Aayog, Member, *ex officio;*

(*g*) Chairperson, Rehabilitation Council of India, Member, *ex officio*;

(*h*) Chairperson, National Trust for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities, Member, *ex officio*;

(*i*) Chairman-cum-Managing Director, National Handicapped Finance Development Corporation, Member, *ex officio*;

(*j*) Chairman-cum-Managing Director, Artificial Limbs Manufacturing Corporation, Member, *ex officio;*

(*k*) Chairman, Railway Board, Member, *ex officio*;

(*l*) Director-General, Employment and Training, Ministry of Labour and Employment, Member, *ex officio*;

(*m*) Director, National Council for Educational Research and Training, Member, *ex officio*;

(*n*) Chairperson, National Council of Teacher Education, Member, *ex officio*;

(*o*) Chairperson, University Grants Commission, Member, *ex officio*;

(*p*) Chairperson, Medical Council of India, Member, *ex officio*;

(*q*) Directors of the following Institutes:—

(*i*) National Institute for the Visually Handicapped, Dehradun;

(*ii*) National Institute for the Mentally Handicapped, Secundrabad;

(*iii*) Pandit Deen Dayal Upadhyay Institute for the Physically Handicapped, New Delhi;

(*iv*) Ali Yavar Jung National Institute for the Hearing Handicapped, Mumbai;

(*v*) National Institute for the Orthopaedically Handicapped, Kolkata;

(*vi*) National Institute of Rehabilitation Training and Research, Cuttack;

(*vii*) National Institute for Empowerment of Persons with Multiple Disabilities, Chennai;

(*viii*) National Institute for Mental Health and Sciences, Bangalore;

(*ix*) Indian Sign Language Research and Training Centre, New Delhi, Members, *ex officio;*

(*r*) Members to be nominated by the Central Government,—

(*i*) five Members who are experts in the field of disability and rehabilitation;

(*ii*) ten Members, as far as practicable, being persons with disabilities, to represent non-Governmental Organisations concerned with disabilities or disabled persons organisations:

Provided that out of the ten Members nominated, at least, five Members shall be women and at least one person each shall be from the Scheduled Castes and the Scheduled Tribes;

(*iii*) up to three representatives of national level chambers of commerce and industry;

(*s*) Joint Secretary to the Government of India dealing with the subject of disability policy, Member-Secretary, *ex officio*.

Terms and conditions of Service of members.

61. *(1)* Save as otherwise provided under this Act, a Member of the Central Advisory Board nominated under clause (*r*) of sub-section (*2*) of section 60 shall hold office for a term of three years from the date of his nomination:

Provided that such a Member shall, notwithstanding the expiration of his term, continue to hold office until his successor enters upon his office.

(*2*) The Central Government may, if it thinks fit, remove any Member nominated under clause (*r*) of sub-section (*2*) of section 60, before the expiry of his term of office after giving him a reasonable opportunity of showing cause against the same.

(*3*) A Member nominated under clause (*r*) of sub-section (*2*) of section 60 may at any time resign his office by writing under his hand addressed to the Central Government and the seat of the said Member shall thereupon becomes vacant.

(*4*) A casual vacancy in the Central Advisory Board shall be filled by a fresh nomination and the person nominated to fill the vacancy shall hold office only for the remainder of the term for which the Member in whose place he was so nominated.

(*5*) A Member nominated under sub-clause (*i*) or sub-clause (*iii*) of clause (*r*) of sub-section (*2*) of section 60 shall be eligible for renomination.

(*6*) The Members nominated under sub-clause (*i*) and sub-clause (*ii*) of clause (*r*) of sub-section (*2*) of section 60 shall receive such allowances as may be prescribed by the Central Government.

Disqualifications.

62. *(1)* No person shall be a Member of the Central Advisory Board, who —

(*a*) is, or at any time has been, adjudged insolvent or has suspended payment of his debts or has compounded with his creditors, or

(*b*) is of unsound mind and stands so declared by a competent court, or

(*c*) is, or has been, convicted of an offence which, in the opinion of the Central Government, involves moral turpitude, or

(*d*) is, or at any time has been, convicted of an offence under this Act, or

(*e*) has so abused his position in the opinion of the Central Government as a Member so as to render his continuance in the office is prejudicial interests of the general public.

(*2*) No order of removal shall be made by the Central Government under this section unless the Member concerned has been given a reasonable opportunity of showing cause against the same.

(*3*) Notwithstanding anything contained in sub-section (*1*) or sub-section (*5*) of section 61, a Member who has been removed under this section shall not be eligible for renomination as a Member.

Vacation of seats by Members.

63. If a Member of the Central Advisory Board becomes subject to any of the disqualifications specified in section 62, his seat shall become vacant.

Meetings of the Central Advisory Board on disability.

64. The Central Advisory Board shall meet at least once in every six months and shall observe such rules of procedure in regard to the transaction of business at its meetings as may be prescribed.

Functions of Central Advisory Board on disability.

65. *(1)* Subject to the provisions of this Act, the Central Advisory Board on disability shall be the national-level consultative and advisory body on disability matters, and shall facilitate the continuous evolution of a comprehensive policy for the empowerment of persons with disabilities and the full enjoyment of rights.

(*2*) In particular and without prejudice to the generality of the foregoing provisions, the Central Advisory Board on disability shall perform the following functions, namely:—

(*a*) advise the Central Government and the State Governments on policies, programmes, legislation and projects with respect to disability;

(*b*) develop a national policy to address issues concerning persons with disabilities;

(*c*) review and coordinate the activities of all Departments of the Government and other Governmental and non-Governmental Organisations which are dealing with matters relating to persons with disabilities;

(*d*) take up the cause of persons with disabilities with the concerned authorities and the international organisations with a view to provide for schemes and projects for the persons with disabilities in the national plans;

(*e*) recommend steps to ensure accessibility, reasonable accommodation, non-discrimination for persons with disabilities *vis-à-vis* information, services and the built environment and their participation in social life;

(*f*) monitor and evaluate the impact of laws, policies and programmes to achieve full participation of persons with disabilities; and

(*g*) such other functions as may be assigned from time to time by the Central Government.

State Advisory Board on disability.

66. *(1)* Every State Government shall, by notification, constitute a body to be known as the State Advisory Board on disability to exercise the powers conferred on, and to perform the function assigned to it, under this Act.

(*2*) The State Advisory Board shall consist of—

(*a*) the Minister in charge of the Department in the State Government dealing with disability matters, Chairperson, *ex officio*;

(*b*) the Minister of State or the Deputy Minister in charge of the Department in the State Government dealing with disability matters, if any, Vice-Chairperson, *ex officio*;

(*c*) secretaries to the State Government in charge of the Departments of Disability Affairs, School Education, Literacy and Higher Education, Women and Child Development, Finance, Personnel and Training, Health and Family Welfare, Rural Development, Panchayati Raj, Industrial Policy and Promotion, Labour and Employment, Urban Development, Housing and Urban Poverty Alleviation, Science and Technology, Information Technology, Public Enterprises, Youth Affairs and Sports, Road Transport and any other Department, which the State Government considers necessary, Members, *ex officio;*

(*d*) three Members of the State Legislature of whom two shall be elected by the Legislative Assembly and one by the Legislative Council, if any, and where there is no Legislative Council, three Members shall be elected by the Legislative Assembly, Members, *ex officio*;

(*e*) Members to be nominated by the State Government:—

(*i*) five Members who are experts in the field of disability and rehabilitation;

(*ii*) five Members to be nominated by the State Government by rotation to represent the districts in such manner as may be prescribed:

Provided that no nomination under this sub-clause shall be made except on the recommendation of the district administration concerned;

(*iii*) ten persons as far as practicable, being persons with disabilities, to represent non-Governmental Organisations or associations which are concerned with disabilities:

Provided that out of the ten persons nominated under this clause, at least, five shall be women and at least one person each shall be from the Scheduled Castes and the Scheduled Tribes;

(*iv*) not more than three representatives of the State Chamber of Commerce and Industry;

(*f*) officer not below the rank of Joint Secretary in the Department dealing with disability matters in the State Government, Member-Secretary, *ex officio*.

Terms and conditions of service of Members.

67. *(1)* Save as otherwise provided under this Act, a Member of the State Advisory Board nominated under clause (*e*) of sub-section (*2*) of section 66, shall hold office for a term of three years from the date of his nomination:

Provided that such a Member shall, notwithstanding the expiration of his term, continue to hold office until his successor enters upon his office.

(*2*) The State Government may, if it thinks fit, remove any Member nominated under clause (*e*) of sub-section (*2*) of section 66, before the expiry of his term of office after giving him a reasonable opportunity of showing cause against the same.

(*3*) A Member nominated under clause (*e*) of sub-section (*2*) of section 66 may at any time resign his office by writing under his hand addressed to the State Government and the seat of the said Member shall thereupon become vacant.

(*4*) A casual vacancy in the State Advisory Board shall be filled by a fresh nomination and the person nominated to fill the vacancy shall hold office only for the remainder of the term for which the Member in whose place he was so nominated.

(*5*) A Member nominated under sub-clause (*i*) or sub-clause (*iii*) of clause (*e*) of sub-section (*2*) of section 66 shall be eligible for renomination.

(*6*) the Members nominated under sub-clause (*i*) and sub-clause (*ii*) of clause (*e*) of sub-section (*2*) of section 66 shall receive such allowances as may be prescribed by the State Government.

Disqualification.

68. *(1)* No person shall be a Member of the State Advisory Board, who—

(*a*) is, or at any time has been, adjudged insolvent or has suspended payment of his debts or has compounded with his creditors, or

(*b*) is of unsound mind and stands so declared by a competent court, or

(*c*) is, or has been, convicted of an offence which, in the opinion of the State Government, involves moral turpitude, or

(*d*) is, or at any time has been, convicted of an offence under this Act, or

(*e*) has so abused in the opinion of the State Government his position as a Member as to render his continuance in the State Advisory Board detrimental to the interests of the general public.

(*2*) No order of removal shall be made by the State Government under this section unless the Member concerned has been given a reasonable opportunity of showing cause against the same.

(*3*) Notwithstanding anything contained in sub-section (*1*) or sub-section (*5*) of section 67, a Member who has been removed under this section shall not be eligible for renomination as a Member.

Vacation of seats.

69. If a Member of the State Advisory Board becomes subject to any of the disqualifications specified in section 68 his seat shall become vacant.

Meetings of State Advisory Board on disability.

70. The State Advisory Board shall meet at least once in every six months and shall observe such rules or procedure in regard to the transaction of business at its meetings as may be prescribed by the State Government.

Functions of State Advisory Board on disability.

71. *(1)* Subject to the provisions of this Act, the State Advisory Board shall be the State-level consultative and advisory body on disability matters, and shall facilitate the continuous evolution of a comprehensive policy for the empowerment of persons with disabilities and the full enjoyment of rights.

(*2*) In particular and without prejudice to the generality of the foregoing provisions, the State Advisory Board on disability shall perform the following functions, namely:—

(*a*) advise the State Government on policies, programmes, legislation and projects with respect to disability;

(*b*) develop a State policy to address issues concerning persons with disabilities;

(*c*) review and coordinate the activities of all Departments of the State Government and other Governmental and non-Governmental Organisations in the State which are dealing with matters relating to persons with disabilities;

(*d*) take up the cause of persons with disabilities with the concerned authorities and the international organisations with a view to provide for schemes and projects for the persons with disabilities in the State plans;

(*e*) recommend steps to ensure accessibility, reasonable accommodation, non-discrimination for persons with disabilities, services and the built environment and their participation in social life on an equal basis with others;

(*f*) monitor and evaluate the impact of laws, policies and programmes designed to achieve full participation of persons with disabilities; and

(*g*) such other functions as may be assigned from time to time by the State Government.

District-level Committee on disability.

72. The State Government shall constitute District-level Committee on disability to perform such functions as may be prescribed by it.

Vacancies not to invalidate proceedings.

73. No act or proceeding of the Central Advisory Board on disability, a State Advisory Board on disability, or a District-level Committee on disability shall be called in question on the ground merely of the existence of any vacancy in or any defect in the constitution of such Board or Committee, as the case may be.

CHAPTER XII

CHIEF COMMISSIONER AND STATE COMMISSIONER FOR PERSONS WITH DISABILITIES

Appointment of Chief Commissioner and Commissioners.

74. *(1)* The Central Government may, by notification, appoint a Chief Commissioner for Persons with Disabilities (hereinafter referred to as the "Chief Commissioner") for the purposes of this Act.

(*2*) The Central Government may, by notification appoint two Commissioners to assist the Chief Commissioner, of which one Commissioner shall be a persons with disability.

(*3*) A person shall not be qualified for appointment as the Chief Commissioner or Commissioner unless he has special knowledge or practical experience in respect of matters relating to rehabilitation.

(*4*) The salary and allowances payable to and other terms and conditions of service (including pension, gratuity and other retirement benefits) of the Chief Commissioner and Commissioners shall be such as may be prescribed by the Central Government.

(*5*) The Central Government shall determine the nature and categories of officers and other employees required to assist the Chief Commissioner in the discharge of his functions and provide the Chief Commissioner with such officers and other employees as it thinks fit.

(*6*) The officers and employees provided to the Chief Commissioner shall discharge their functions under the general superintendence and control of the Chief Commissioner.

(*7*) The salaries and allowances and other conditions of service of officers and employees shall be such as may be prescribed by the Central Government.

(*8*) The Chief Commissioner shall be assisted by an advisory committee comprising of not more than eleven members drawn from the experts from different disabilities in such manner as may be prescribed by the Central Government.

Functions of Chief Commissioner.

75. (*1*) The Chief Commissioner shall—

(*a*) identify, *suo motu* or otherwise, the provisions of any law or policy, programme and procedures, which are inconsistent with this Act and recommend necessary corrective steps;

(*b*) inquire, *suo motu* or otherwise, deprivation of rights of persons with disabilities and safeguards available to them in respect of matters for which the Central Government is the appropriate Government and take up the matter with appropriate authorities for corrective action;

(*c*) review the safeguards provided by or under this Act or any other law for the time being in force for the protection of rights of persons with disabilities and recommend measures for their effective implementation;

(*d*) review the factors that inhibit the enjoyment of rights of persons with disabilities and recommend appropriate remedial measures;

(*e*) study treaties and other international instruments on the rights of persons with disabilities and make recommendations for their effective implementation;

(*f*) undertake and promote research in the field of the rights of persons with disabilities;

(*g*) promote awareness of the rights of persons with disabilities and the safeguards available for their protection;

(*h*) monitor implementation of the provisions of this Act and schemes, programmes meant for persons with disabilities;

(*i*) monitor utilisation of funds disbursed by the Central Government for the benefit of persons with disabilities; and

(*j*) perform such other functions as the Central Government may assign.

(*2*) The Chief Commissioner shall consult the Commissioners on any matter while discharging its functions under this Act.

Action of appropriate authorities on recommendation of Chief Commissioner.

76. Whenever the Chief Commissioner makes a recommendation to an authority in pursuance of clause (*b*) of section 75, that authority shall take necessary action on it, and inform the Chief Commissioner of the action taken within three months from the date of receipt of the recommendation:

Provided that where an authority does not accept a recommendation, it shall convey reasons for non-acceptance to the Chief Commissioner within a period of three months, and shall also inform the aggrieved person.

Powers of Chief Commissioner.

77. *(1)* The Chief Commissioner shall, for the purpose of discharging his functions under this Act, have the same powers of a civil court as are vested in a court under the Code of Civil Procedure, 1908 while trying a suit, in respect of the following matters, namely:— 5 of 1908.

(*a*) summoning and enforcing the attendance of witnesses;

(*b*) requiring the discovery and production of any documents;

(*c*) requisitioning any public record or copy thereof from any court or office;

(*d*) receiving evidence on affidavits; and

(*e*) issuing commissions for the examination of witnesses or documents.

(*2*) Every proceeding before the Chief Commissioner shall be a judicial proceeding within the meaning of sections 193 and 228 of the Indian Penal Code and the Chief Commissioner shall be deemed to be a civil court for the purposes of section 195 and Chapter XXVI of the Code of Criminal Procedure, 1973. 45 of 1860. 2 of 1974.

Annual and special reports by Chief Commissioner.

78. *(1)* The Chief Commissioner shall submit an annual report to the Central Government and may at any time submit special reports on any matter, which, in his opinion, is of such urgency or importance that it shall not be deferred till submission of the annual report.

(*2*) The Central Government shall cause the annual and the special reports of the Chief Commissioner to be laid before each House of Parliament, along with a memorandum of action taken or proposed to be taken on his recommendations and the reasons for non-acceptance the recommendations, if any.

(*3*) The annual and special reports shall be prepared in such form, manner and contain such details as may be prescribed by the Central Government.

Appointment of State Commissioner in States.

79. (*1*) The State Government may, by notification, appoint a State Commissioner for Persons with Disabilities (hereinafter referred to as the "State Commissioner") for the purposes of this Act.

(*2*) A person shall not be qualified for appointment as the State Commissioner unless he has special knowledge or practical experience in respect of matters relating to rehabilitation.

(*3*) The salary and allowances payable to and other terms and conditions of service (including pension, gratuity and other retirement benefits) of the State Commissioner shall be such as may be prescribed by the State Government.

(*4*) The State Government shall determine the nature and categories of officers and other employees required to assist the State Commissioner in the discharge of his functions and provide the State Commissioner with such officers and other employees as it thinks fit.

(*5*) The officers and employees provided to the State Commissioner shall discharge his functions under the general superintendence and control of the State Commissioner.

(*6*) The salaries and allowances and other conditions of service of officers and employees shall be such as may be prescribed by the State Government.

(*7*) The State Commissioner shall be assisted by an advisory committee comprising of not more than five members drawn from the experts in the disability sector in such manner as may be prescribed by the State Government.

Functions of State Commissioner.

80. The State Commissioner shall—

(*a*) identify, *suo motu* or otherwise, provision of any law or policy, programme and procedures, which are in consistent with this Act, and recommend necessary corrective steps;

(*b*) inquire, *suo motu* or otherwise deprivation of rights of persons with disabilities and safeguards available to them in respect of matters for which the State Government is the appropriate Government and take up the matter with appropriate authorities for corrective action;

(*c*) review the safeguards provided by or under this Act or any other law for the time being in force for the protection of rights of persons with disabilities and recommend measures for their effective implementation;

(*d*) review the factors that inhibit the enjoyment of rights of persons with disabilities and recommend appropriate remedial measures;

(*e*) undertake and promote research in the field of the rights of persons with disabilities;

(*f*) promote awareness of the rights of persons with disabilities and the safeguards available for their protection;

(*g*) monitor implementation of the provisions of this Act and schemes, programmes meant for persons with disabilities;

(*h*) monitor utilisation of funds disbursed by the State Government for the benefits of persons with disabilities; and

(*i*) perform such other functions as the State Government may assign.

Action by appropriate authorities on recommendation of State Commissioner.

81. Whenever the State Commissioner makes a recommendation to an authority in pursuance of clause (*b*) of section 80, that authority shall take necessary action on it, and inform the State Commissioner of the action taken within three months from the date of receipt of the recommendation:

Provided that where an authority does not accept a recommendation, it shall convey reasons for non-acceptance to the State Commissioner for Persons with Disabilities within the period of three months, and shall also inform the aggrieved person.

Powers of State Commissioner.

82. (*1*) The State Commissioner shall, for the purpose of discharging their functions under this Act, have the same powers of a civil court as are vested in a court under the Code of Civil Procedure, 1908 while trying a suit, in respect of the following matters, namely:— 5 of 1908.

(*a*) summoning and enforcing the attendance of witnesses;

(*b*) requiring the discovery and production of any documents;

(*c*) requisitioning any public record or copy thereof from any court or office;

(*d*) receiving evidence on affidavits; and

(*e*) issuing commissions for the examination of witnesses or documents.

(*2*) Every proceeding before the State Commissioner shall be a judicial proceeding within the meaning of sections 193 and 228 of the Indian Penal Code and the State Commissioners shall be deemed to be a civil court for the purposes of section 195 and Chapter XXVI of the Code of Criminal Procedure, 1973. 45 of 1860. 2 of 1974.

Annual and special reports by State Commissioner.

83. (*1*) The State Commissioner shall submit an annual report to the State Government and may at any time submit special reports on any matter, which, in its opinion, is of such urgency or importance that it shall not be deferred till submission of the annual report.

(*2*) The State Government shall cause the annual and the special reports of the State Commissioner for persons with disabilities to be laid before each House of State Legislature where it consists of two Houses or where such Legislature consist of one House, before that House along with a memorandum of action taken or proposed to be taken on the recommendation of the State Commissioner and the reasons for non-acceptance the recommendations, if any.

(*3*) The annual and special reports shall be prepared in such form, manner and contain such details as may be prescribed by the State Government.

CHAPTER XIII

SPECIAL COURT

Special Court.

84. For the purpose of providing speedy trial, the State Government shall, with the concurrence of the Chief Justice of the High Court, by notification, specify for each district, a Court of Session to be a Special Court to try the offences under this Act.

Special Public Prosecutor.

85. *(1)* For every Special Court, the State Government may, by notification, specify a Public Prosecutor or appoint an advocate, who has been in practice as an advocate for not less than seven years, as a Special Public Prosecutor for the purpose of conducting cases in that Court.

(*2*) The Special Public Prosecutor appointed under sub-section (*1*) shall be entitled to receive such fees or remuneration as may be prescribed by the State Government.

CHAPTER XIV

NATIONAL FUND FOR PERSONS WITH DISABILITIES

National Fund for persons with disabilities.

86. (*1*) There shall be constituted a Fund to be called the National Fund for persons with disabilities and there shall be credited thereto—

(*a*) all sums available under the Fund for people with disabilities, constituted *vide* notification No. S.O. 573 (*E*), dated the 11th August, 1983 and the Trust Fund for Empowerment of Persons with Disabilities, constituted *vide* notification No. 30-03/ 2004-DDII, dated the 21st November, 2006, under the Charitable Endowment Act, 1890.

6 of 1890.

(*b*) all sums payable by banks, corporations, financial institutions in pursuance of judgment dated the 16th April, 2004 of the Hon'ble Supreme Court in Civil Appeal Nos. 4655 and 5218 of 2000;

(*c*) all sums received by way of grant, gifts, donations, benefactions, bequests or transfers;

(*d*) all sums received from the Central Government including grants-in-aid;

(*e*) all sums from such other sources as may be decided by the Central Government.

(*2*) The Fund for persons with disabilities shall be utilised and managed in such manner as may be prescribed.

Accounts and audit.

87. *(1)* The Central Government shall maintain proper accounts and other relevant records and prepare an annual statement of accounts of the Fund including the income and expenditure accounts in such form as may be prescribed in consultation with the Comptroller and Auditor-General of India.

(*2*) The accounts of the Fund shall be audited by the Comptroller and Auditor-General of India at such intervals as may be specified by him and any expenditure incurred by him in connection with such audit shall be payable from the Fund to the Comptroller and Auditor-General of India.

(*3*) The Comptroller and Auditor-General of India and any other person appointed by him in connection with the audit of the accounts of the Fund shall have the same rights, privileges and authority in connection with such audit as the Comptroller and Auditor-General of India generally has in connection with the audit of the Government accounts, and in particular, shall have the right to demand production of books of account, connected vouchers and other documents and papers and to inspect any of the offices of the Fund.

(*4*) The accounts of the Fund as certified by the Comptroller and Auditor-General of India or any other person appointed by him in this behalf, together with the audit report thereon, shall be laid before each House of Parliament by the Central Government.

CHAPTER XV

STATE FUND FOR PERSONS WITH DISABILITIES

State Fund for persons with disabilities.

88. (*1*) There shall be constituted a Fund to be called the State Fund for persons with disabilities by a State Government in such manner as may be prescribed by the State Government.

(*2*) The State Fund for persons with disabilities shall be utilised and managed in such manner as may be prescribed by the State Government.

(*3*) Every State Government shall maintain proper accounts and other relevant records of the State Fund for persons with disabilities including the income and expenditure accounts in such form as may be prescribed by the State Government in consultation with the Comptroller and Auditor-General of India.

(*4*) The accounts of the State Fund for persons with disabilities shall be audited by the Comptroller and Auditor-General of India at such intervals as may be specified by him and any expenditure incurred by him in connection with such audit shall be payable from the State Fund to the Comptroller and Auditor-General of India.

(*5*) The Comptroller and Auditor-General of India and any person appointed by him in connection with the audit of the accounts of the State Fund for persons with disabilities shall have the same rights, privileges and authority in connection with such audit as the Comptroller and Auditor-General of India generally has in connection with the audit of the Government accounts, and in particular, shall have right to demand production of books of accounts, connected vouchers and other documents and papers and to inspect any of the offices of the State Fund.

(*6*) The accounts of the State Fund for persons with disabilites as certified by the Comptroller and Auditor-General of India or any other person appointed by him in this behalf together with the audit report thereon shall be laid before each House of the State Legislature where it consists of two Houses or where such Legislature consists of one House before that House.

CHAPTER XVI

OFFENCES AND PENALTIES

Punishment for contravention of provisions of Act or rules or regulations made thereunder.

89. Any person who contravenes any of the provisions of this Act, or of any rule made thereunder shall for first contravention be punishable with fine which may extend to ten thounsand rupees and for any subsequent contravention with fine which shall not be less than fifty thousand rupees but which may extend to five lakh rupees.

Offences by companies.

90. (*1*) Where an offence under this Act has been committed by a company, every person who at the time the offence was committed, was in charge of, and was responsible to, the company for the conduct of the business of the company, as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly:

Provided that nothing contained in this sub-section shall render any such person liable to any punishment provided in this Act, if he proves that the offence was committed without his knowledge or that he had exercised all due diligence to prevent the commission of such offence.

(*2*) Notwithstanding anything contained in sub-section (*1*), where an offence under this Act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

Explanation.—For the purposes of this section,—

(*a*) "company" means any body corporate and includes a firm or other association of individuals; and

(*b*) "director", in relation to a firm, means a partner in the firm.

Punishment for fraudulently availing any benefit meant for persons with benchmark disabilities.

91. Whoever, fraudulently avails or attempts to avail any benefit meant for persons with benchmark disabilities, shall be punishable with imprisonment for a term which may extend to two years or with fine which may extend to one lakh rupees or with both.

Punishment for offences of atrocities.

92. Whoever,—

(*a*) intentionally insults or intimidates with intent to humiliate a person with disability in any place within public view;

(*b*) assaults or uses force to any person with disability with intent to dishonour him or outrage the modesty of a woman with disability;

(*c*) having the actual charge or control over a person with disability voluntarily or knowingly denies food or fluids to him or her;

(*d*) being in a position to dominate the will of a child or woman with disability and uses that position to exploit her sexually;

(*e*) voluntarily injures, damages or interferes with the use of any limb or sense or any supporting device of a person with disability;

(*f*) performs, conducts or directs any medical procedure to be performed on a woman with disability which leads to or is likely to lead to termination of pregnancy without her express consent except in cases where medical procedure for termination of pregnancy is done in severe cases of disability and with the opinion of a registered medical practitioner and also with the consent of the guardian of the woman with disability,

shall be punishable with imprisonment for a term which shall not be less than six months but which may extend to five years and with fine.

Punishment for failure to furnish information.

93. Whoever, fails to produce any book, account or other documents or to furnish any statement, information or particulars which, under this Act or any order, or direction made or given thereunder, is duty bound to produce or furnish or to answer any question put in pursuance of the provisions of this Act or of any order, or direction made or given thereunder, shall be punishable with fine which may extend to twenty-five thousand rupees in respect of each offence, and in case of continued failure or refusal, with further fine which may extend to one thousand rupees for each day, of continued failure or refusal after the date of original order imposing punishment of fine.

Previous sanction of appropriate Government.

94. No Court shall take cognizance of an offence alleged to have been committed by an employee of the appropriate Government under this Chapter, except with the previous sanction of the appropriate Government or a complaint is filed by an officer authorised by it in this behalf.

Alternative punishments.

95. Where an act or omission constitutes an offence punishable under this Act and also under any other Central or State Act, then, notwithstanding anything contained in any other law for the time being in force, the offender found guilty of such offence shall be liable to punishment only under such Act as provides for punishment which is greater in degree.

CHAPTER XVII

MISCELLANEOUS

Application of other laws not barred.

96. The provisions of this Act shall be in addition to, and not in derogation of, the provisions of any other law for the time being in force.

Protection of action taken in good faith.

97. No suit, prosecution or other legal proceeding shall lie against the appropriate Government or any officer of the appropriate Government or any officer or employee of the Chief Commissioner or the State Commissioner for anything which is in good faith done or intended to be done under this Act or the rules made thereunder.

Power to remove difficulties.

98. *(1)* If any difficulty arises in giving effect to the provisions of this Act, the Central Government may, by order, published in the Official Gazette, make such provisions or give such directions, not inconsistent with the provisions of this Act, as may appear to it to be necessary or expedient for removing the difficulty:

Provided that no such order shall be made under this section after the expiry of the period of two years from the date of commencement of this Act.

(*2*) Every order made under this section shall be laid as soon as may be, after it is made, before each House of Parliament.

Power to amend Schedule.

99. *(1)* On the recommendations made by the appropriate Government or otherwise, if the Central Government is satisfied that it is necessary or expedient so to do, it may, by notification, amend the Schedule and any such notification being issued, the Schedule shall be deemed to have been amended accordingly.

(*2*) Every such notification shall, as soon as possible after it is issued, shall be laid before each House of Parliament.

Power of Central Government to make rules.

100. (*1*) The Central Government may, subject to the condition of previous publication, by notification, make rules for carrying out the provisions of this Act.

(*2*) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely:—

(*a*) the manner of constituting the Committee for Research on Disability under sub-section (*2*) of section 6;

(*b*) the manner of notifying the equal opportunity policy under sub-section (*1*) of section 21;

(*c*) the form and manner of maintaining records by every establishment under sub-section (*1*) of section 22;

(*d*) the manner of maintenance of register of complaints by grievance redressal officer under sub-section (*3*) of section 23;

(*e*) the manner of furnishing information and return by establishment to the Special Employment Exchange under section 36;

(*f*) the composition of the Assessment Board under sub-section (*2*) and manner of assessment to be made by the Assessment Board under sub-section (*3*) of section 38;

(*g*) rules for person with disabilites laying down the standards of accessibility under section 40;

(*h*) the manner of application for issuance of certificate of disability under sub-section (*1*) and form of certificate of disability under sub-section (*2*) of section 58;

(*i*) the allowances to be paid to nominated Members of the Central Advisory Board under sub-section (*6*) of section 61;

(*j*) the rules of procedure for transaction of business in the meetings of the Central Advisory Board under section 64;

(*k*) the salaries and allowances and other conditions of services of Chief Commissioner and Commissioners under sub-section (*4*) of section 74;

(*l*) the salaries and allowances and conditions of services of officers and staff of the Chief Commissioner under sub-section (*7*) of section 74;

(*m*) the composition and manner of appointment of experts in the advisory committee under sub-section (*8*) of section 74;

(*n*) the form, manner and content of annual report to be prepared and submitted by the Chief Commissioner under sub-section (*3*) of section 78;

(*o*) the procedure, manner of utilisation and management of the Fund under sub-section (*2*) of section 86; and

(*p*) the form for preparation of accounts of Fund under sub-section (*1*) of section 87.

(*3*) Every rule made under this Act shall be laid, as soon as may be after it is made, before each House of Parliament while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.

Power of State Government to make rules.

101. *(1)* The State Government may, subject to the condition of previous publication, by notification, make rules for carrying out the provisions of this Act, not later than six months from the date of commencement of this Act.

(*2*) In particular, and without prejudice to the generality of foregoing powers, such rules may provide for all or any of the following matters, namely:—

(*a*) the manner of constituting the Committee for Research on Disablity under sub-section (*2*) of section 5;

(*b*) the manner of providing support of a limited guardian under sub-section (*1*) of section 14;

(*c*) the form and manner of making an application for certificate of registration under sub-section (*1*) of section 51;

(*d*) the facilities to be provided and standards to be met by institutions for grant of certificate of registration under sub-section (*3*) of section 51;

(*e*) the validity of certificate of registration, the form of, and conditions attached to, certificate of registration under sub-section (*4*) of section 51;

(*f*) the period of disposal of application for certificate of registration under sub-section (*7*) of section 51;

(*g*) the period within which an appeal to be made under sub-section (*1*) of section 53;

(*h*) the time and manner of appealing against the order of certifying authority under sub-section (*1*) and manner of disposal of such appeal under sub-section (*2*) of section 59;

(*i*) the allowances to be paid to nominated Members of the State Advisory Board under sub-section (*6*) of section 67;

(*j*) the rules of procedure for transaction of business in the meetings of the State Advisory Board under section 70;

(*k*) the composition and functions of District Level Committee under section 72;

(*l*) salaries, allowances and other conditions of services of the State Commissioner under sub-section (*3*) of section 79;

(*m*) the salaries, allowances and conditions of services of officers and staff of the State Commissioner under sub-section (*3*) of section 79;

(*n*) the composition and manner of appointment of experts in the advisory committee under sub-section (*7*) of section 79;

(*o*) the form, manner and content of annual and special reports to be prepared and submitted by the State Commissioner under sub-section (*3*) of section 83;

(*p*) the fee or remuneration to be paid to the Special Public Prosecutor under sub-section (*2*) of section 85;

(*q*) the manner of constitution of State Fund for persons with disabilities under sub-section (*1*), and the manner of utilisation and management of State Fund under sub-section (*2*) of section 88;

(*r*) the form for preparation of accounts of the State Fund for persons with disabilities under sub-section (*3*) of section 88.

(*3*) Every rule made by the State Government under this Act shall be laid, as soon as may be after it is made, before each House of the State Legislature where it consists of two Houses, or where such State Legislature consists of one House, before that House.

Repeal and savings.

102. *(1)* The Persons with Disabilities (Equal Opportunity Protection of Rights and Full Participation) Act, 1995 is hereby repealed. 1 of 1996.

(*2*) Notwithstanding the repeal of the said Act, anything done or any action taken under the said Act, shall be deemed to have been done or taken under the corresponding provisions of this Act.

THE SCHEDULE

[*See* clause (*zc*) of section 2]

SPECIFIED DISABILITY

1. Physical disability.—

A. Locomotor disability (a person's inability to execute distinctive activities associated with movement of self and objects resulting from affliction of musculoskeletal or nervous system or both), including—

(*a*) "leprosy cured person" means a person who has been cured of leprosy but is suffering from—

(*i*) loss of sensation in hands or feet as well as loss of sensation and paresis in the eye and eye-lid but with no manifest deformity;

(*ii*) manifest deformity and paresis but having sufficient mobility in their hands and feet to enable them to engage in normal economic activity;

(*iii*) extreme physical deformity as well as advanced age which prevents him/her from undertaking any gainful occupation, and the expression "leprosy cured" shall construed accordingly;

(*b*) "cerebral palsy" means a Group of non-progressive neurological condition affecting body movements and muscle coordination, caused by damage to one or more specific areas of the brain, usually occurring before, during or shortly after birth;

(*c*) "dwarfism" means a medical or genetic condition resulting in an adult height of 4 feet 10 inches (147 centimeters) or less;

(*d*) "muscular dystrophy" means a group of hereditary genetic muscle disease that weakens the muscles that move the human body and persons with multiple dystrophy have incorrect and missing information in their genes, which prevents them from making the proteins they need for healthy muscles. It is characterised by progressive skeletal muscle weakness, defects in muscle proteins, and the death of muscle cells and tissue;

(*e*) "acid attack victims" means a person disfigured due to violent assaults by throwing of acid or similar corrosive substance.

B. Visual impairment—

(*a*) "blindness" means a condition where a person has any of the following conditions, after best correction—

(*i*) total absence of sight; or

(*ii*) visual acuity less than 3/60 or less than 10/200 (Snellen) in the better eye with best possible correction; or

(*iii*) limitation of the field of vision subtending an angle of less than 10 degree.

(*b*) "low-vision" means a condition where a person has any of the following conditons, namely:—

(*i*) visual acuity not exceeding 6/18 or less than 20/60 upto 3/60 or upto 10/200 (Snellen) in the better eye with best possible corrections; or

(*ii*) limitation of the field of vision subtending an angle of less than 40 degree up to 10 degree.

C. Hearing impairment—

(*a*) "deaf" means persons having 70 DB hearing loss in speech frequencies in both ears;

(*b*) "hard of hearing" means person having 60 DB to 70 DB hearing loss in speech frequencies in both ears;

D. "speech and language disability" means a permanent disability arising out of conditions such as laryngectomy or aphasia affecting one or more components of speech and language due to organic or neurological causes.

2. Intellectual disability, a condition characterised by significant limitation both in intellectual functioning (rasoning, learning, problem solving) and in adaptive behaviour which covers a range of every day, social and practical skills, including—

(*a*) "specific learning disabilities" means a heterogeneous group of conditions wherein there is a deficit in processing language, spoken or written, that may manifest itself as a difficulty to comprehend, speak, read, write, spell, or to do mathematical calculations and includes such conditions as perceptual disabilities, dyslexia, dysgraphia, dyscalculia, dyspraxia and developmental aphasia;

(*b*) "autism spectrum disorder" means a neuro-developmental condition typically appearing in the first three years of life that significantly affects a person's ability to communicate, understand relationships and relate to others, and is frequently associated with unusal or stereotypical rituals or behaviours.

3. Mental behaviour,—

"mental illness" means a substantial disorder of thinking, mood, perception, orientation or memory that grossly impairs judgment, behaviour, capacity to recognise reality or ability to meet the ordinary demands of life, but does not include retardation which is a conditon of arrested or incomplete development of mind of a person, specially characterised by subnormality of intelligence.

4. Disability caused due to—

(*a*) chronic neurological conditions, such as—

(*i*) "multiple sclerosis" means an inflammatory, nervous system disease in which the myelin sheaths around the axons of nerve cells of the brain and spinal cord are damaged, leading to demyelination and affecting the ability of nerve cells in the brain and spinal cord to communicate with each other;

(*ii*) "parkinson's disease" means a progressive disease of the nervous system marked by tremor, muscular rigidity, and slow, imprecise movement, chiefly affecting middle-aged and elderly people associated with degeneration of the basal ganglia of the brain and a deficiency of the neurotransmitter dopamine.

(*b*) Blood disorder—

(*i*) "haemophilia" means an inheritable disease, usually affecting only male but transmitted by women to their male children, characterised by loss or impairment of the normal clotting ability of blood so that a minor would may result in fatal bleeding;

(*ii*) "thalassemia" means a group of inherited disorders characterised by reduced or absent amounts of haemoglobin.

(*iii*) "sickle cell disease" means a hemolytic disorder characterised by chronic anemia, painful events, and various complications due to associated

tissue and organ damage; "hemolytic" refers to the destruction of the cell membrane of red blood cells resulting in the release of hemoglobin.

5. Multiple Disabilities (more than one of the above specified disabilities) including deaf blindness which means a condition in which a person may have combination of hearing and visual impairments causing severe communication, developmental, and educational problems.

6. Any other category as may be notified by the Central Government.

———

DR. G. NARAYANA RAJU,
Secretary to the Govt. of India.

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Master of Arts (Gujarati) M.A Part-1

Name of Programme	**Master of Arts Gujarati**
Abbreviation	M A
Duration	**2 Years**
Eligibility Criteria	B.A./ Bachelor Degree in Gujarati
Objectives of the Programme	**POI:** The core objective of the programme is to prepare students of it aking careers in teaching Gujarati language and literature, Media-communication, copy editing, proof reading, script writing, This course is a perfect choice for students who want to enhance and develop thei language skills in Gujarati. **P02:** The main objective of this program is to provide educational knowledge in Gujarati language through the study .of literature and there cultural forms. This course encourages students to research historical cultural periods, language acquisition. **P03:** This programme provides students the training to develop professional communication skills in Gujarati. This course also helps to improve writing and verbal ability in this language. **P04:** It helps to develop intellectual curiosity towards the Gujarati language. In this programme, students will gain good knowledge abou t Gujarati which will am lif their career in the teaching field.
Programme Outcomes	**POI:** To provide the students with a higher degree of exposure,appropriate at the postgraduate level, to literature, criticism and theory and language studies. **P02:** To develop an aptitude for research in students for their possible further study for a research degree like M.Phil./Ph.D. **P03:** To inspire and mentor students to develop varied skills through extracurricular activities like sports, cultural activities and social service for the eventual nation building. **P04:** To make the students acquire employable skills in the areas of Gujarati, Proof reading and context writing in Mass Media. The students get familiarized with interdisciplinary studies like Literature and Film, Literature and History, Literature and Psychology etc.
Programme Specific Outcomes	**PSOI:** To train the students into the critical reading and analysis of the w works in Gujarati. So that they can take careers in teaching Gujarati language and literature, Media-communication, proof reading w writing, **P S02:** To develop and refine the students' communicative skills in Gujarati. The students not only enrich their command over language through interdisciplinary studies but also gain in-depth knowledge of ther disciplines. **P PS03:** To train the students for academic jobs related to teaching and research at various levels, the language oriented jobs in Mass Media, and competitive examinations like GPSC, UPSC, NET, SLET and others.
Mapping between POs and PSOs	

	PSO1	PSO2	PSO3
POI			
P02			
P03			
P04			

Medium oflnstruction		Gujarati						
Program Structure		Semester - I						
Course Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
1801130101010001	LITERARY FORM : TEXTS	4	0	4	2Hrs	50	20	70
1801130101020001	INDIAN LITERARY CRITICISM	4	0	4	2 Hrs	50	20	70
1801130101030001	GUJARATI LITERARY CRITICISM - I	4	0	4	2 Hrs	50	20	70
1801130101040001	MODERN LITERATURE (A)	4	0	4	2 Hrs	50	20	70
1801130101040002	LITERATURE AND MYTH (B)							
1801130101040003	LITERATURE AND CULTURE (C)							
1801130101050001	PROOF READING (A)	4	0	4	2 Hrs	50	20	70
1801130101050002	rrRANSLATION STUDIES (B)							
1801130101060001	[erm Paper	2	NA	2	NA	70	-	70
	Tota	22	0	22				
Program Structure		Semester 2						
Course Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
1901130102010001	COMPARATIVE ILITERATURE	4	0	4	2Hrs	50	20	70
1901130102020001	LINGUISTICS - I	4	0	4	2 Hrs	50	20	70
1901130102030001	GUJARATI LITERARY CRITICISM - II	4	0	4	2 Hrs	50	20	70
1901130102040001	POSTMODERN LITERATURE(A)	4	0	4	2 Hrs	50	20	70
1901130102040002	!DIASPORA LITERATURE (B)							
1901130102040003	LITERATURE AND HISTRORY(C)							
1901130102050001	ILITERATURE AND FILM (A)	4	0	4	2 Hrs	50	20	70
1901130102050.002	POPULAR LITERATURE (B)							
1901130102060001	[erm Paper	2	NA	2	NA	70	-	70
	Tota	22	0	22				

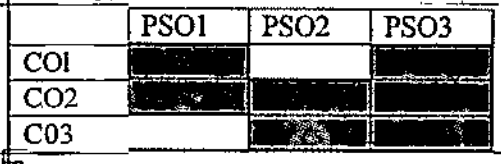
Master of Arts (Gujarati): 1st Semester
Course: 1801130101010001: LITERARY FORM: TEXTS P-1

Course Code	**1801130101010001**
Course Title	**LITERARY FORM: TEXTS P-1**
Credit	4
Teaching per Week	4 hrs.
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• To familiarize the students with the form and the historiography of literary form *Khand Kavya.*
Course Objective	Understanding *Khan Kavya* and its comparison with other literary forms. To familiarize students with other *Khand Kavyas* and their poets.
Course Outcomes	**CO1:** To familiarize students with the literary form, its historiography and features. **CO2:** To understand the relationship between *Khand Kavya* (Narrative Poetry) and Short-Story. **CO3:** To understand the use of myth and metres in *Khand Kavya.*
Mapping between COs with PSOs	PSO1 CO1 CO2 CO3
Pre-requisite	To establish familiarity with *Khand Kavya*
Course Content	**Unit-1** : *Khand Kavya* as a literary form, its features and development **Unit-2** : Comparative analysis of *Khand Kavya* and Short-Story **Unit-3** : Best Gujarati *KhandKavyo-(Ed.)* Chinu Modi, Satish Vyas, Aadarsh Prakashan **Unit-4** : 'Bahuk' -Chinu Modi, Aadarsh Prakashan
Reference Books	1. Khand Kavya Swamp Vikas-Chinu Modi 2. Khand Kavya -Jaydev Shukla 3. Sahitya Swarupashreni- Saman Shah 4. Seventeen Literary Forms -Prasad Brahmbhatt 5. Bahuk-le, Chinu Modi, Aadarsh Prakashan 6. Best Gujarati Khand Kavya--Chinu Modi, Satish Vyas, AadarshPrakashan 7. Mukt Dirgh Kavita - Deepak Raval, Parshva Prakashan 8. Sahitya Swarupo-- K.C. Mehta 9. Aapna Khand Kavya -(Ed.) DhirubhaiThakar **Best Gujarati Khand Kavya - Chiou Modi, Satish Vyas** 1. Vasant Vijay- Kant 2. Chakravak Mithun- Kant 3. Grammata-Kalapi 4. Tukaramnu Svargarohan -R.V. Pathak 5. Chhelli Puja - Prahalad Parekh 6. Jatayu-SitanshuYasheshchandra
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	rrhis course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; twhile the external evaluation will be out of 50 marks at the university examination.

Course: 1801130101020001: INDIAN LITERARY CRITICISM P-2

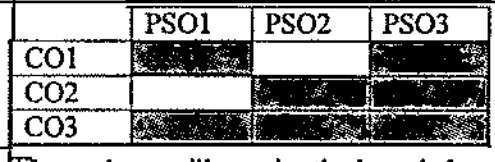
· Course Code	1801130101020001
Course Title	INDIAN LITERARY CRITICISM
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Classwork, examination, re aration, holidays etc.)
Effective From	une 2021
Purpose of Course	• To acquaint students with major Indian philosophical thinkers and critics becaus it is essential to have a comprehensive understanding of these thinkers in order to evaluate literary texts.
Course Objective	o make students familiar with Bharatiya Sahitya Mimansa
Course Outcomes	**COl:** To develop an understanding oflndian Literary Criticism **CO2:** To analyze literary texts against the background oflndian literary criticism **C03:** To understand the fundamental theory of Indian Literary Criticism
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 [redacted] CO2 [redacted] C03 [redacted]
Pre-requisite	To establish familiarization with Indian Literary Criticism
Course Content	**U nitl:** Rasa Theory-Terminology and Concept **U nit 2:** Concept of Dhwani Theory **U nit 3:** Vakrokti Vichar by Kuntak **U nit 4:** Concept ofRamniyata
Reference Books	1. Bharatiya Sahityama Vichar Parmpara-Tapasvi Nandi 2. Bharatiya Sahitya Mimansa -Bahecharbhai Patel 3. Abhinav Guptno Rasvichar ane Bija Lekho -Nagindas Parekh 4. Bharatiya Kavya Siddhant - Natubhai Rajparaane Jayant Kothari S. Dhwanyalok - Dolaray Mankad 6. Dhwanyalok - Ananad vardhan 7. Anandvardhanno Dhwani Vichar - Nagindas Parekh 8. Ras Siddhant: Ek Parichay - Dr. Pramod kumar Patel 9. KuntaknoVichar - Nagindas Parekh 10. KuntaknoVakrokti Vichar - Dr. Ramesh Shukla
Teaching Methodology	C lass work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1801130101030001: GUJARATI LITERARY CRITICISM-I P-3

Course Code	1801130101030001
Course Title	GUJARATI LITERARY CRITICISM- I
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• To acquaint students with major critics of Gujarati literary criticism and to mak them understand its history. • To make students understand about the change in the concepts of Art, Morality, Communication and Form as far as Gujarati Literature is concerned.
Course Objective	To make students develop a comprehensive understanding about Gujarati Literary Criticism
Course Outcomes	**CO1:** The students will acquire knowledge of Western Literary Criticism along with Gujarati literary criticism. **CO2:** Impact of Eastern and Western literary criticism on Gujarati Literary criticism. **C03:** To make students understand about the change in the concepts of Art, Morality, Communication and Form as far as Gujarati Literature is concerned.
Mapping between COs with PSOs	
Pre-requisite	To make students understand about Gujarati literary criticism
Course Content	**Unit 1:** Narmad's Concept of Poetry **Unit 2:** Navalram's Concept of Poetry **Unit 3:** Ramanbhai Nilkanth's Concept of Poetry **Unit 4:** B.K.Thakor's Concept of Poetry
Reference Books	1. Vivechannu Vivechan -Jayant Kothari 2. Vat Apnaa Vivechanni - Shirish Panchal 3. Apnu Vivechan Sahitya - Hiraben Pathak 4. Gujarati Sahitya Vivechan - Pramodkumar Patel 5. Pratiti - Pramodkumar Patel 6. Vivechanpothi - Shirish Panchal 7. Narmad Ek Adhyayan - Ramesh Shukl 8. Vivechak Navlram - Purnima Bhatt 9. B.K. Thakorno Kavya Vichar - Harshad Trivedi 10. Vivechanno Anubandh - ChandrkantTopiwala
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out off 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

	PSO1	PSO2	PSO3
CO1			
CO2			
C03			

Course: 1801130101040001: MODERN LITERATUREP-4 (A)

Course Code	1801130101040001
Course Title	MODERN LITERATURE
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• To understand the concept of modernity as well as its relationship with tradition. • Impact of modernism on Gujarati literature.
Course Objective	Developing a fuller understanding of the nature of modernity and the evaluation o he works of art against its background.
Course Outcomes	**CO1:** The students will understand the concept of modernity and factors responsible for its origin. **CO2:** The students will learn about different literary texts of World Literature and heir contextual relationship with different -isms. **CO3:** The students will be able to evaluate the modern Gujarati literary text against he background of modernism.
Mapping between COs with PSOs	
Pre-requisite	The students will acquire the knowledge of the impact of modernism on Gujarati literature
Course Content	**Unit 1:** Concept of Modernity **Unit2:** Impact of Modernity on Gujarati Poetry, Short Story and Novel **Unit3:** 'Tolu' - Ghanshyam Desai **Unit4:** 'Fero' -Radheshyam Sharma
Reference Books	1. Tolu -Ghanshyam Desai, R.R.SethPublication, Ahmedabad 2. Fero - Radheshaym Sharma, Parshva Publications 3. Sahityama Adhunikta - Suman Shah 4. Gujarati Sahityama Adhuniktavaad - Pramodkumar Patel 5. Adhunikta: Ek Sankul Sampratyay - Bipin Ashar 6. Gujarati Navlkatha - Raghuvir Chaudhari 7. Gujarati Kathavishwa -Babu Davlpura 8. Kavitama Adhunikata-Bholabhai Patel 9. Adhunik Kavita - Niranjan Bhagat 10. Navalkatha Shilp ane Sarjan -Naresh Ved 11. Ghanshyam Desai Granth(Ed.)Urmi Desai ane Deepak Doshi 12. Chandrakant Bakshi's'Fero' - Suman Shah
Teachin Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

	PSO1	PSO2	PSO3
CO1			
CO2			
CO3			

Course: 1801130101040002: LITERATUREAND MYTH P- 4 (B)

Course Code	**1801130101040002:**
Course Title	**MYTH AND LITERATURE B**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• The students should understand the concept of Myth and its inter-disciplinary relationship with linguistics, religion, sociology etc.
Course Objective	To make students familiarize with the concept of Myth and to make them understand its literary significance
Course Outcomes	**CO1:** Understanding the concept of myth **CO2:** Understanding the relationship of myth with other disciplines **C03:** Understanding the interpretative use of myth in a given literary text.
Mapping between COs with PSOs	PSO1 PSO2 PSO3 CO1 ■ ■ CO2 ■ ■ C03 ■
Pre-requisite	Understanding the concept of myth and its intertextuality
Course Content	**Unit 1:** Concept of Myth **Unit 2** : Myth and Its Relation with other Disciplines **Unit 3** : Urubhang-Bhasa, (Trans.)Harshdev Madhav, ParshvaPrakashan **Unit 4:** AntimYudh-Dhwanil Parekh, Divine Prakashan
Reference Books	1. Purakalpan - Pravin Darji, University Granth Nirman Board 2. Kala Sahitya aneVivechan -Pramodkumar Patel 3. Adhunik Sahitya Sangyano Parichay - Chandrkant Topiwala 4. Urubhang - Bhasa, (Trans.)Harshdev Madhav 5. AntimYudh-Dhwanil Parekh 6. NatakmaMith-Dhwanil Parekh 7. Adhunik Sahitya SangyaKosh- ChandrkantTopiwala 8. Sahitya Parishad Kosh Khand - 3
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course:1801130101040003: LITERATURE AND CULTURE P-4 (C)

Course Code	1801130101040003
Course Title	LITERATURE AND CULTURE (C)
Credit	4
Teachin er Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• To make students familiarize with the Culture of Gujarat based on the relationshi between literature and culture
Course Objective	To make students familiar with Gujarati Culture
Course Outcomes	**COl:** The students will study literary texts from socio-cultural perspective. **CO2:** The students will comprehend the holistic meaning of culture. **C03:** The students will learn about the reciprocal relationship between literature and ulture.
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 COl | | | CO2 | | | C03 | | |
Pre-requisite	The students will get an exposure about the relationship between literature and culture.
Course Content	**Unit-1:** Introducing the cultural diversity of Gujarat by clarifying the meaning of culture **Unit-2:** Relationship between literature and culture and their effects on one another **Unit-3:** Study of Gujarati culture with reference to Saraswatichadra-1 **Unit 4:** Gujaratni Lok sanskriti - Hasutaben Sedani (University Granth Nirman Board,Ahmedabad
Reference Books	1. Alochna (Hindi) naVividhAnko, 82,1987 2. Sahityka Samajshastriya Chintan - (Hindi) - Nirrnal Jain 3. Vyvharik Samajshastra - Dr. Sanjiv Mahajan 4. Sahitya: Manas Shastra, Samjas Shastra aneltihasSandarbhe - Dr. Naresh Shukla 5. Literature and Society, Penguin Book- 1956 6. Sanskruti, Bahu Sanskruti ane Sahitya- Pravin Darji 7. Sahityano Samajik Sandarbh -Alok Gupta, Parshva Publication 8. Samajlakshi Manovigyan - Dr.Nanakbhai Kadarm,Parshva publication
Teachin Methodolo	Class work, Discussion, Self-Stud , Seminars and/or Assi nment, Guest Lectures
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; wbile the external evaluation will be out of 50 marks at the university examination.

Course: 1801130101050001: PROOF READING P-5 (A)

Course Code	1801130101050001
Course Title	PROOF-READING
Credit	4
Teachin er Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• To understand the importance of proof-reading as a linguistic skill. • To understand the critical si nificance of roof-readin in terms of ublication.
Course Objective	This course aims at teaching the orthographical features which are very essential for Ian ua e learnin .
Course Outcomes	**COI:** The students will be proficient in writing Gujarati language. **CO2:** The students will learn about the art and skill of proof-reading. **C03:** The students will be able to secure a job on the basis of the skill of proof readin
Mapping between COs with PSOs	PSO1 / PSO2 / PSO3 CO1 / CO2 / CO3
Pre-re uisite	Understanding the importance of proof-readin
Course Content	**Unit-1:** Proof, Proof-reader, and Importance of Proofreading, Dictionary: Types o Dictionaries and their Importance, Method of Reading Dictionary - 'Akaradikram' **Unit-2:** Rules of Gujarati Spellings **Unit-3:** Rules of Sandhi & Samas **Unit-4:** Proof-Readin
Reference Books	1. Sarth Jodnikosh, Gujarat Vidhyapith, Ahmedabad 2. Lekhan Paddhati ane Proof Vachan -Ramesh Shukla 3. Proof Vachan -Ratilal Nayak 4. Vyakaran Vimarsh - UrmiGanshyam Desai 5. Gujarati Bhashanu Vyakaran - Yogendra Vyas 6. Moto Kosh - Ratilal Nayak
Teachin Methodolo Evaluation Method	Class work, Discussion, Self-Stud , Seminars and/or Assi nment, Guest Lectures o his course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; hile the external evaluation will be out of 50 marks at the university examination.

Course: 1801130101050002: TRANSLATION AND ITS PROBLEMS P-5 (B)

Course Code	**1801130101050002**
Course Title	**TRANSLATION AND ITS PROBLEMS**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understanding translation and its problems. • Getting an exposure of Indian and Western literary classics through translation.
Course Objective	Students should get an exposure in the classics of other languages and should develop an understanding towards the problems of translation.
Course Outcomes	**CO1:** The students will learn about Western Literary Classics. **CO2:** The students will be able to compare Indian literary classics with the Western counterparts. **CO3:** The students will be able to secure a job based on the skill of translation a ell as will understand the problems of translation
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 CO2 C03
Pre-requisite	Understanding translation, its problems and its usefulness
Course Content	**Unit-1:** Translation: Terminology, Definitions and Concept **Unit-2:** Problems of Translation Regarding Culture & Place **Unit-3:** Rajinder Singh Bedi's *Ek Chadar Mailisi* **Unit-4:** *Ek Chadar Mailisi* Translation by Mohan Dandikar
Reference Books	1. Anuvad Kala - Nagindas Parekh 2. Anuvad Vigyan - Bholanath Tiwari 3. Anuvad Vichar ane Anuvad Prakriya - Raman Soni 4. Anuvadni Samasyao - Mohanbhai Patel 5. Gujarati AnuvadVichar - Jayantibhai Chaudhari 6. Gyan Gangotri Shreni Granth
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Master of Arts (Gujarati): 2ed Semester

Course: 1901130102010001: COMPARATIVE LITERATURE P-6

Course Code	1901130102010001
Course Title	COMPARATIVE LITERATURE
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Critical evaluation of literary texts based on different approaches, including the comparative approach.
Course Objective	Students will learn to appreciate the comparativeapproach to literature.
Course Outcomes	**CO1:** Students will get job opportunities in Research, Blog writing, Medi ommunication and other related fields. **CO2:** The students will learn about the classics oflndian and Western literary literature. **C03:** The students will develop the skill of making a difference between a classic literary text and an average literary text.
Mapping between COs with PSOs	PSO1 PSO2 PSO3 CO1 ■ ■ CO2 ■ ■ C03 ■	
Pre-requisite	Understanding the comparative approach to literature.
Course Content	**Unit 1:** Comparative Literature: Definition, Concept, Features and Domain **Unit 2:** Approaches of Comparative Literature (withreference to French and American Approaches) **Unit 3:** 'Krushnayan' and 'Draupadi': A Thematic Comparison **Unit 4:** A Comparative Analysis of Characters in Kaja! Oza's 'Krushnayan' and Pratibha Rai's 'Draupadi'
Reference Books	1. *Krushnayan* - Kaja! Oza, Navbharat Prakashan 2. *Draupadi-Pratibha* Rai, Arunoday Prakashan 3. *Tulnatamk Sahitya-Dhiru Parikh* 4. *Tulnatmak Sahityni Disha Ma -Ashvin Desai* 5. *Tulnatmak Sahitya Abhyas - Vasant Bapat, Anu. Jaya Mehta, Jashvanti Dave* 6. *Tulnatmak Sahitya: Siddhant Ane Viniyog - Prasad Bhrahmahhatt* 7. *Tulnatmak Sahitya - Chaitanya Desai* 8. *Pratyaksha - Online* 9. *Tulnatmak Sahitya Ni Bhumika - Indranath Chaudhari*
Teachin Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1901130102020001: LINGUISTICS-I P-7

Course Code	**1901130102020001**
Course Title	**LINGUISTICS - I**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understand and learning linguistics and phonetics
Course Objective	• **This course aims at teaching about the various branches of Linguistics, th elements of Ian ua e and the rocess of articulation of sounds.**
Cours Outcomes	**COI:** The students will learn about linguistics, its various branches and phonetics. **CO2:** Students will get work opportunities in Speech therapy,Technical writing and Copywriting, Language teaching, and the other related field. **C03:** Students will get work opportunities as Linguists, Radio presenters, Voice artists, etc.
Mapping between COs with PSOs	PSO1 PSO2 PSO3 COl CO2 C03
Pre-requisite	Understanding linguistics and phonetics
Course Content	**Unit 1:** Domain of Linguistics **Unit 2:** Phonetics **nit 3:** The Process of Making Articulation **nit 4:** Accepted Gujarati Sound
Reference Books	*1. Bhasha Vigyan* (Samvardhit Aavrutti, 1978) - Dr. K.B. Vyas *2. Bhasaha Parichaya,* Popular Prakashan, Surat *3. Gujarati Bhashanu Dhwani Swarup ane Dhwani Parivartan* - Dr. Prabodh Pandit *4. General Linguistics - R.H Robins* *5. Dhwani Ghatakni Vibhavna* - Dr. Bharati Ben Dave *6. Bhasha Parichayaane Gujarati Bhashanu* Swarup - Jayant Kothari *7. Vuttapatti Vichar* - Dr.Harivallabh Bhayani *8. Tulnatmak Sahityani Bhumika* - Indranath Chaudhari *9. Bhashavigyan Parichay*- Ramesh Trivedi *10. Gujarati Vyakarana Pravesh*- Ashraf Khan Pathan *11. Thodok Vyakarana Vichar* - Dr.Harivallabh Bhayani *12. Shabd ane Parishilan*- Dr.Harivallabh Bhayani *13. Gujarati Bhasha* - Dr. T.N. Dave *14. Vyakran Vimarash*- Dr.Urmi Ghanshyam Desai *15. Vyakran: ArthaneAakar* - Dr. Prabodh Pandit *16. Gujarati Vakya Rachna*- Dr. Prabodh Pandit *17. Gujarati Bhasha ane Sahitya (Narsinharav Divetiyana Be Bhagma Pragat Thavela Vyakhyan Pustakono Sankshep) Sankshepkaar* - Dr. **Ke.Ka.** Shastri
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	his course has 04 credits during the semester. The internal evaluation will be outof 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1901130102030001: GUJARATI LITERARY CRITICISM - II P-8

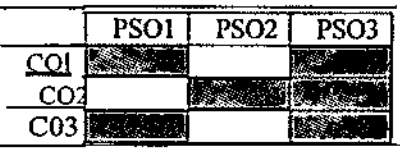
Course Code	1901130102030001
Course Title	GUJARATI LITERARY CRITICISM - II
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	une 2021
Purpose of Course	• To acquaint students with major critics of Gujarati literary criticism and t make them understand its history. • To make students understand about the change in the concepts of Art, Morality, Communication and Form as far as Gujarati Literature is concerned.
Course Objective	To make students develop a comprehensive understanding about Gujarati Literar Criticism
Course Outcomes	**CO1:** The students will acquire knowledge of Western Literary Criticism alon with Gujarati literary criticism. **CO2:** Impact of Eastern and Western literary criticism on Gujarati Litera criticism. **CO3:** To make students understand about the change in the concepts of Art, Morality, Communication and Form as far as Gujarati Literature is concerned.
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 CO2 C03
Pre-requisite	Understanding about Gujarati Literary Criticism
Course Content	**Unit 1:** RamnarayanVishvnath Pathak's Concept of Poetry **Unit 2:** Umashankar Joshi's Concept of Poetry ·13· Thoughts of Vishnuprasad Trivedi **Unit 4:** Suresh Joshi's Poetry Concept
Reference Books	1. *Vivechannu Vivechan* - Jayant Kothari 2. *Vaat Aapna Vivechanni* -Shirish Panchal 3. *Aapnu Vivechan Sahitya* -Heeraben Pathak 4. *Gujarati Sahitya Vivechan* -Pramodkumar Patel 5. *Vivechak R.V. Pathak-Shirish* Panchal 6. *Vivechanpothi* -Shirish Panchal 7. *Vivechak Umashankar Joshi* - Shirish Panchal 8. *Vivechak Vishnu Prasad Trivedi* - Shirish Panchal 9. *Vivechak Suresh Joshi* - Shirish Panchal 10. *Kathopkathan*- Suresh Joshi
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	Tl his course has 04 credits during the semester. The internal evaluation will be out of of 20 marks, based on Unit Test marks, Library assignments and attendance mε arks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1901130102040001: POST MODERN LITERATUREP-9 (A)

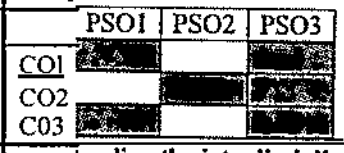
Course Code	1901130102040001
Course Title	POST-MODERN LITERATURE
Credit	4
Teaching per Week	4 .Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understanding the paradigm shift from modernism to post-modernism. • Understanding the fundamental concept of post-modernism.
Course Objective	Students will study the Concept and Works of Post-modern Literature.
Course Outcomes	**CO1:** The students will understand the difference between the feature of modernism and post-modernism. **CO2:** The students will understand the exclusiveness of post-modern writers. **C03:** After understanding post-modernism, the students may be able to take up modern-day photography or painting as a freelance job. (Modern Art)
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 | | CO2 | | C03 | |
Pre-requisite	Understanding post-modernism and its nuances.
Course Content	**Unit-1:** Concept of Post-Modernism **Unit-2** : Feminist and Dalit Consciousness **Unit-3:** Gujarati Dalit Kavita - (Ed.) Nirav Patel (Pasanagini Kavita 25) **Unit-4** · k Dagal Aaga - P I Desai, Flemingo Prakashan
Reference Books	1. *Gujarati Dalit Kavita-* (Ed.)Nirav Patel, Sahitya Akademi, Delhi 2. *Ek Dagalu Aagal* -Parul Desai, Flemingo Prakashan 3. *Anuaadhunikta ane Aapne* - Suman Shah 4. *Aadhunikottar Sahitya* -Sudha Pandya 5. *Pratibadhdha* - Bharat Maheta, ParshvaPrakashan 6. *Pratyayan-B.N.* Vankar 7. *Vishesh-* Ila Nayak, Parshva Prakashan 8. *VartaSandarbh-* Sharifa Vijalivala, GurjarPrakashan 9. *Shatroopa-* Sharifa Vijalivala, GurjarPrakashan 10. *Dalit Samvednaane Sahitya-* Nathalal Gohil 11. *Dalit Sampratyaya* - Naresh Vaghela, AadarshPrakashan 12. *Dalit Sahitya* - Gunvant Vyas 13. *Gujarati Tunki Vartama Dalit Samvedna-Jayshree* Solanki 14. *Shabdasrushti, Dalit Sahitya Visheshank-* Sahitya Akademi, Gandhinagar 15. *Dalit Kavita-* (Ed.) Mohan Parmar, ParshvaPrakashan *Gujarati Dalit Kavita* - **(Ed.) Nirav Patel (Abhyaskramma Pasand Kare Kavitao)** 1. *Gaam Chhodi Jata* - Pravin Gadhvi 2. *Mandir Pravesh N Karo Dosto* - Pravin Gadhvi 3. *FariBhul N Karto Mahatma* - Pravin Gadhvi 4. *Hun Eklavya* - Dalpat Chauhan 5. *Asprushya-* Dalpat Chauhan 6. *Sparsh-* Harish Mangalam

	7. *Arth*- Harish Mangalam 8. *Asprushya Kavita* - Sahil Parmar 9. *Tanva Mate N Aavva*- Sahil Parmar 10. *Vado* - Raju Solanki 11. *Babasahebni Jai*- Raju Solanki 12. *ChyamLya Etlo FatiGyo*- Shankar Painter 13. *Over Bridge* - B.N. Vanakar 14. *Aanandni Kavita*- Yashvant Vaghela 15. *Shabdane Joya Chhe Mein* - Jayant Parmar 16. *Dalit Kavinu Vasiyatnamu*- Jayant Parmar 17. *Ahin*- Kishan Sosa 18. *RamkhangrastShaher*- Kishan Sosa 19. *Maro Shamdiyo*- Nirav Patel 20. *Hun ane Doshi* - Nirav Patel 21. *Lakh* - Pathik Parmar 22. *Amne Adhikar Aapo*- MadhukantKalpit 23. *Gandhiji Ne* -ArvindVegda 24. *Kavyanu Mulya*- Chandu Maheriya 25. *Chaudmino Surya* - Nilesh Kathad
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

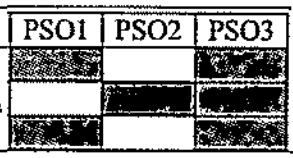
Course: 1901130102040002: DIASPORA LITERATURE P-9 (B)

Course Code	**1901130102040002**
Course Title	**DIASPORA LITERATURE B**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understanding diaspora literature as well as the essential differences in the features between Indian literature and Diaspora literature.
Course Objective	Develop a fuller understanding of diaspora literature.
Course Outcomes	**COl:** The students will learn about the Gujarati writers in Diaspora Literature. **CO2:** The students will be able to write about the history of Diaspora Literature. **C03:** The students will be able to teach Diaspora Literature in colleges and Universities.
Mapping between COs with PSOs	
Pre-requisite	Understanding Diaspora Literature
Course Content	**Unit-1:** Concept ofDiasporic Literature **Unit-2:** Introduction of Gujarati Diaspora Literature - Short Stories, Novels, Poems **Unit-3:** Form of Short Story **Unit-4:** Panna NayaknoVartalok- Panna Nayak, lemingo Publication
Reference Books	1. *Diasporic Sahitya* - (Ed.) Ketan Bunha 2. *Americama Bharatiyo*- Pravin N.Seth, Jagdish Dave 3. *Americama Ketlak Gujarati Sajako* - Madhusudan Kapdiya, Sahitya Akademi, 2011 4. *British Gujarati Da* 5. *Diaspora Kavyadhara*- Balvant Jani
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	his course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1901130102040003: LITERATURE AND HISTRORY P-9 (C)

.Course Code	**1901130102040003**
Course Title	**LITERATURE AND HISTRORY C**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understanding the significance of interdisciplinary studies. • Understandin the relationshi between literature and histo
Course Objective	Students will develop an understanding of the relationship between History and iterature. Students will get work opportunities as Interpreters, Historiographer, Chronologist, etc.
Course Outcomes	**COl:** The students will get job opportunities in Teaching, Research, Historical archiving and other related fields. **CO2:** The students will get job opportunities as Historiographer, Chroniclers etc. **C03:** The students will develop an understanding regarding the representation o history in literature.
Mapping between COs with PSOs	
Pre-re uisite	Understanding the interdisci linarit between literature and history
Course Content	**Unit-1:** Meaning of History, Concep and Introduction of Tools About Risto Writing U ·t- : Impact Study: Relationship Between History and Literature **Unit-3:** Golden eriod of Gujarat (Political and Cultural Study) **Unit--4 :** atanni PJ:a.bhuta- Study with Reference to History and Literature
Reference Books	1. *Parishad Pramukhona Vyakhyano*- B.J.Vidhyabhavan, Ahmedabad 2. *Gujaratno Rajkiya Ane Sanskrutik Itihas*- R.C. Parikh, Hariprasad Shashtri 3. *Gujarat Ek Darshan;* Prachya Vidhyamandir, MSU, Baroda 4. *Sahitya: Manas Shashtra, Sama} Shahstra Ane Jtihas Sandarbhe*- Naresh Shukl 5. *Kalakarno Jtihasbodh* - Bharat Mehta 6. *Sambodhina VividhAnko* - L.D. Indology, Ahmedabad 7. *Navalkatha Swarup Ane Vaividhya* - Shirish Panchal
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assi nment, Guest Lectures
Evaluation Method	his course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1901130102050001: LITERATURE AND FILM P-10 (A)

Course Code	1901130102050001
Course Title	LITERATURE AND FILM A
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	une 2021
Purpose of Course	• Understanding the interdisciplinarity between literature and film and the process of adaptation.
Course Objective	Students will learn to do the Comparative Study of Literature and Film, and thereb learn about the basic principles of adaptation.
Course Outcomes	**COl:** The students will be able to do film-reviewing based on the critical understanding of cinema studies. **CO2:** The students will learn the art of film appreciation. **C03:** The students will be able to impart the knowledge and skill of film appreciation to others.
Mapping between COs with PSOs	
Pre-requisite	Understanding the interdisciplinarity between literature and film.
Course Content	**Unit-1:** Process of Film-Making **Unit-2:** Art Form: Similarities and Differences Between Literature and Film **Unit-3** : Kanku - Pannalal Patel (Pannalal's Story and Film) **Unit-4** : Pinjar- Amrita Pritam -RajkamalPrakashan
Reference Books	1. *Camerani Aankhe* - Drashti Patel 2. *Pannalalno VartaVishesh*- Sharifa Vijaliwala, Sanjivani Prakashan 3. *Rupantar* - Amrit Gangar, Arunodaya Prakashan 4. *Sahityama Film avlokan-Abhijit* Vyas 5. *Sahitya Ane Cinema No Anubandh*- Mahipatsinh Raulji 6. *Samipena Lekho*- Shirish Panchal 7. *Amrita Pritamni Pinjar* - Sharifa Vijaliwala 8. *Kathasahitya Ane Cinema* - Tarun Banker
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

	PSO1	PSO2	PSO3
COl			
CO2			
C03			

Course: 1901130102050002: POPULAR LITERATURE P-10 (B)

Course Code	**1901130102050002**
Course Title	**OPULAR LITERATURE B**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• The students will widen their scope of understanding classic literature based on their readings of popular literature.
Course Objective	Students will understand the difference between Classic Literature and Popular Literature.
Course Outcomes	**COl:** The students will be able to write biogs and columns. **CO2:** The students will be able to enjoy the writings of popular fiction writers. **C03:** The students get familiarized with interdisciplinary studies like Literature and Film, Literature and History, Literature and Psychology etc.
Mapping between COs with PSOs	PSO1 PSO2 PSO3 CO1 ■ ■ CO2 ■ C03 ■ ■
Pre-requisite	Understanding popular literature and its trends
Course Content	**Unit-1:** Concept of Popular Literature, its attributes and factors leading to popular literature **nit-2:** Difference Between Classic Literature and Popular Literature Difference Between Famous and Popular Literature **Unit-3:** Neerja Bhargav - Ashwini Bhatt, Navbharat Prakashan **Unit-4** : Ekaltana Kinara -Chandrakant Bakshi, Pravin Prakashan
Reference Books	1. *Anuadhunik Sahitya Sangnakosh* - Jayant Gadit 2. *Gujarati Nava/katha-Raghuvir* Chaudhari 3. *Aapani Katha* - Jayant Gadit 4. *Samipe Na Anko*- Shirish Panchal 5. *Sahityaka Samaj Shashtra* - Major Pande, Haryana Akademi
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	his course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Master of Arts (Gujarati) M.A- Part-2

Name of Program	**Master of Arts (Gujarati)**
Abbreviation	**MA**
Duration	**Years**
Eligibility Criteria	B.A./ Bachelor Degree in Gujarati
Objective of the Program	**POI:** The core objective of the programme is to prepare students fo aking careers in teaching Gujarati language and literature, Media-communication, copy editing, proof reading, script writing, This course is perfect choice for students who want to enhance and develop thei language skills in Gujarati. **P02:** The main objective of this program is to provide educational knowledge in Gujarati language through the study of literature and othe ·ultural forms. This course encourages students to research historical ·ultural periods, language acquisition. **P03:** This programme provides students the tramrng to develo professional commw1ication skills in Gujarati. This course also helps to improve writing and verbal ability in this language. **P04:** It helps to develop intellectual curiosity towards the Gujarati language. In this programme, students will gain good knowledge abou 1ujarati which will amplify their career in the teaching field.
Program Outcome	**POI:** To provide the students with a higher degree of exposure, appropriate at the postgraduate level, to literature, criticism and heory and language studies. **P02:** To develop an aptitude for research in students for thei possible further study for a research degree like M.Phil./Ph.D. **P03:** To inspire and mentor students to develop varied skills hrough extracurricular activities like sports, cultural activities and social service for the eventual nation building. **P04:** To make the students acquire employable skills in the areas o Gujarati Proof Reading, Mass Media & Copy editing, if they ar ood Speakers, they can work on different Radio Channels. Th students get familiarized with interdisciplinary . studies lik Literature and Film, Literature and History, Literature and Psycholo y·etc.
Program Specific Outcomes	**PSOI:** To train the students into the critical reading and analysis o he works in Gujarati. So that they can take careers in teachin Gujarati language and literature, Media-communication, proo reading, script writing, **PS02:** To develop and refine the students' communicative skills i Gujarati. The students not only enrich their command over language hrough interdisciplinary studies but also gain in-depth knowledg of other disciplines. **PSO3:** To train the students for academic jobs related to teachin and research at various levels, the language-oriented jobs in Mass Media, and competitive examinations like GPSC, UPSC, NET, SLET and others.
Mapping between POs and PSOs	PSO1 | PSO2 | PSO3 PO1 PO2 PO3 PO4
Medium of Instruction	Gujarati
Program Structure	Semester 3

iCourse Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practica		Duration	Marks		
1901130103010001	CONCEPT OF INDIAN LITERATURE	4	0	4	2Hrs	50	20	70
1901130103020001	WESTERN LITERARY CRITICISM	4	0	4	2Hrs	50	20	70
1901130103030001	FOLK LITERATURE - I	4	0	4	2Hrs	50	20	70
1901130103040001	LITERATURE AND SOCIOLOGY(A)	4	0	4	2Hrs	50	20	70
1901130103040002	TEXTS OF MEDIEVAL GUJARATI LITERATURE (B)							
1901130103040003	LITERATURE AND OTHER ARTS (C)							
1901130103050001	AUTHOR :"MOHAN PARMAR" A)	4	0	4	2Hrs	50	20	70
1901130103050002	APPROACHES OF CRITICISM (B)							
1901130103060001	Term Paper	2	NA	2	NA	70	-	70
	Total	22	0	22				

Program Structure	Semester4

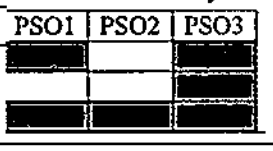
Course Code	Title	Teaching per week		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
2001130104010001	WORLDLITERATURE	4	0	4	2Hrs	50	20	70
2001130104020001	LINGUISTICS - II	4	0	4	2Hrs	50	20	70
2001130104030001	FOLK LITERATURE - II	4	0	4	2Hrs	50	20	70
2001130104040001	[LITERATURE & PSYCHOLOG A)	4	0	4	2Hrs	50	20	70
2001130104040002	CONTEMPORARY TEXTS (B)							
2001130104040003	LITERATURE & AESTHETICS (C)							
2001130104050001	LITERARY JOURNALISM (A)	4	0	4	2Hrs	50	20	70
2001130104050002	NARRATOLOGY (B)							
2001130104060001	rrerm Paper	2	NA	2	NA	70	-	70
	Total	22	0	22				

Master of Arts (Gujarati):3rd Semester

Course:1901130103010001: CONCEPT OF INDIAN LITERATURE P-11

Course Code	**1901130103010001**
Course Title	**CONCEPT OF INDIAN LITERATURE**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understanding Indian Literature which includes Vedas, Indian Epics like *Mahabharata & Ramayana* as well as Classical Sanskrit Literature.
Course Objective	Students will get acquainted with the concept of Indian Literature and its variou aspects.
Course Outcomes	**CO1:** The students will learn about the tradition ofIndian Literature. **CO2:** The students will learn about the literature ofIndian sub-continent. **C03:** The students will also learn about contemporary Indian literature.
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 COi CO2 C03
Pre-requisite	Understanding Indian Literature
Course Content	**Unit 1:** The Concept ofIndian Literature and Picturesque Variety **Unit-2:** ntroductionio Indian Writers **Unit-3:** 'Malgudi Days' -R.K. Narayan, Translated by Kanti Patel, Arunoday Prakashan **Unit-4:** 'Chakra' -Jayant Dalvi, Translated byAruna Jadeja, ArunodayPrakashan
Reference Books	1. *Sahityasetu* - July-August, 2017, Vaishali Dholakiya (Online) 2. *Bharatiya Sahitya Parmaparano Vistar* - Bholabhai Patel 3. *Bharatiya Sahitya* - K. Sachchidanand, Rajkamal Prakashan, New Delhi 4. *Bharatiya Navalkatha* - Bipin Ashar 5. *Bharatiya Navalkatha* - Bharat Mehta 6. *Bharatiya Navalkatha* - Ramanlal Joshi, University Granth Nirman Board 7. *Gyan Gangotri Shreni, Bharatiya Sahitya-12113,* **S.P.** University, GurjarVikreta 8. *Kalpurush* - Bholabhai Patel, Gurjar Prakashan 9. *Bharatiya Sahityani Bhumika-* Dr.Ramvilas Shai:ina 10. *Gyanpith Puraskrut Navalkatha* - Bharat Mehta
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course:1901130103020001: WESTERN LITERARY CRITICISM P-12

Course Code	1901130103020001
Course Title	WESTERN LITERARY CRITICISM
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, reparation, holidays etc.)
Effective From	une 2021
Purpose of Course	• Understanding Western Literary Criticism which includes critics from Gree tradition to modern and post-modern times.
Course Objective	Students will get acquainted with Western Aesthetics.
Course Outcomes	**CO1:** The students will learn about the all-pervasive influence of these critics on World Literary Criticism. **CO2:** The students will be able to make a comparative analysis of Indian and Western Criticism. **C03:** Apart from textual criticism, the students will also learn phonological, syntactic and semantic-stylistic appreciation of a text.
Mapping between COs with PSOs	
Pre-requisite	Understanding Western Literary Criticism
Course Content	**Unit-1** : Plato, Aristotle **Unit-2** : Longinus **Unit-3** : T.S. Eliot **Unit-4** : Susanne Langer
Reference Books	1. *Plato, Aristotleni Kavya Vicharna*- Jayat Kothari 2. *Eliotno Kavya Vichar* - Suman Shah 3. *Kavi-Vivechak Eliot* - Suman Shah 4. *Aristotlenu Kavyashastra* - Aniruddh Bhramabhatt 5. *Aristotlenu Kavyashastra* - Translated by Jaya Mehta 6. *Platonu Sahityashastra* - Suresh Dalal 7. *Paschatya Sahitya Mimansha* - Behcharbhai Patel 8. *Bhartiya ane Paschatya Sahitya Mimansha* - Ramesh Trivedi 9. *Kavyapurush-Natavarsinh* Parmar 10. *Shabda Deshno-Shabda Videshno-Chandrakant* Sheth 11. *Sahityama Vivek-Verse fold,*- Translated byNagindas Parekh 12. *Sahitya Vivechanna Siddhanto* - Abercrombie - Translated by Nagindas Parekh 13. *Paschimnu Sahitya Vivechan-Part 1, 2*- Dr. Shirish Panchal, University Granth Nirman Board
Teaching Methodology	lasswork, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	his course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

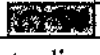
Course:1901130103030001: FOLK LITERATURE-I P-13

Course Code	**1901130103030001**
Course Title	**FOLK LITERATURE - I**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understanding the significance of Folklore and Folk Literature as the connecting links in the development and socio-cultural evolution of a particular community at a given point of time in history. For e.g. they can be helpful in understanding the dynamics of 21h Century society.
Course Objective	Students will get familiarized with Folk Literature.
Course Outcomes	**CO1:**The students will learn about the importance of folklore in studying or understanding anthropology. CO2:The students will learn about his own society and the nearly-forgotten folk traditions. **CO3:The** students will also learn about the forgotten expressions as well customs of his/her own society.
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 | | | CO2 | | | CO3 | | |
Pre-requisite	Understanding folklore and folk literature
Course Content	**Unit 1:** The Concept of Folk Literature **Unit 2:** Folk Song and Ballad **Unit 3:** Folk Drama: Bhavai **Unit 4:** 'Gujarat Na Folk Songs' (Ed.)Khodidas Parmar, Sahitya Akademi, New Delhi (Selected Songs)
Reference Books	1. *Gujarati Loksahitya Vimarsh* - Balvant Jani, Parshva Prakashan, Ahmedabad 2. *Gujarati Lokvidya*- Dr.Hasu Yagnik, National Book Trust, New Delhi 3. *Gujaratni Loksanskruti* - Dr.Hasutaben Sedani, University Granth Nirman Board, Ahmedabad 4. *Loksahitya* - (Ed.) Prabhashankar Teraiya, Narottam Palan, Gujarat Sahitya Parishad, Ahmedabad 5. *Loksahitya: Vibhavana Ane Prakar* -Hasu Yagnik, Gujarat GranthRatna Karyalaya, Ahmedabad 6. *Lagnageet-Ek Abhyas* - Jayanand Joshi 7. *Lokgeet-Ek Adhyayan* - Amrut Patel 8. *Gujaratna Lokgeeto* - Khodidas Parmar 9. *Lokgeet Tatvaane Tantra*- (Ed.)Balvant Jani 10. *Lokvangmay* - Kanubhai Jani 11. *Kanku re Vayu (Lagnageeto)* -Amrut Patel 12. *Loksahi anu Samalochan* - Zaverchand Meghani, Prasar 188, Bhavnagar
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	his course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

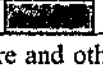
Course:1901130103040001: LITERATURE AND SOCIOLOGY P-14 (A)

Course Code	1901130103040001
Course Title	LITERATURE AND SOCIOLOGY A
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understanding the relationship between literature and society and their reciprocal relationship.
Course Objective	The students will understand the inter-relationship between literature and sociology through Creative Texts.
Course Outcomes	**CO1** :The students will learn about the concept of society in relation to Literature. **CO2:The** students may get job opportunities in NGOs or other institutions working for society at large. **CO3:The** students may get job opportunities in Women's Commission or Remand Home etc.
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 CO2 C03
Pre-requisite	Understanding the relationship between Literature and Society.
Course Content	**nit-1:** Definition and concept of literature and society **Unit-2:** Interrelationships between literature and society and its discussions by the Gujarati Critics **Unit-3** : 'Tirade Phuti Kumpal' - Mahesh Elkunchvar, Transformation - Ravindra Parekh, Arunodaya Prakashan **nit-4** : Manorath - Raghuveer Chaudhari, Rannade Prakashan
Reference Books	1. *Sahitya ane Sama)* - Vidyut Joshi, Centre for Social Studies, Surat Publication, 2004 2. *Sahitya ane Samajeek Chetna* - Sudhir Chandra, Centre for Social Studies, Surat Publication, 2004 3. *Kalanu Samajshastra* - Axay Desai, R.R. Sheth Publication 4. *Govardharnram: Ketlak Samajik-Sanskrutik Pasao,* Sudhir Chandra, Centre for Social Studies, Surat Publication, 1988 5. *Arthat-Visheshank: 2010-11,* Centre for Social Studies, Surat Publication 6. *Sahityaka Samajashastra* - Menejar Pandey, Haryana Sahitya Akademi 7. *Pratibaddh-Bharat* Mehta 8. *Gujarati Kathavishva (Navalakatha)* - Babu Davalpura 9. *Kathavichar* -Promodkumar Patel 10. *Sahityano Samajik Sandarbh* - Alok Gupta 11. *Gujarati Nava/katha* - Fervicharana, Jasvant Shekhadiwala 12. *Sahitya Samajno Ayano* - Mina! Dave, Arunoday Prakashan 13. *Sahitya Akademi Puraskrut Nava/kathao* - Gunvant Vyas 14. *Gujarati Kathavishva-* Naresh Ved 15. *Sahityanu Samajshastra* - Naresh Shukla, Flamingo Prakashan 16. *Amrutathi Dharadham* - Drashti Patel, Sunita Patel, Rangdwar Prakashan
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	his course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course:1901130103040002: TEXTS OF MEDIEVAL GUJARATI LITERATURE P-14 (B)

Course Code	1901130103040002
Course Title	TEXTS OF MEDIEVAL GUJARATI LITERATURE B
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understanding the factors responsible for the Literature of Middle Ages. • Understanding the influence of these factors in the evolution of Bhakti Movement in Literature.
Course Objective	Students can review forms of Medieval Gujarati Literature with reference t litera works.
Course Outcomes	**CO1:The** students will learn about the historical background of Literature of Middle Ages and the factors responsible for it. **CO2:The** students will learn about making a difference between the Literatures of Middle Ages and Modem times. CO3:The students will learn about the writers of Middle Ages and their works of art.
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 | | CO2 | | CO3 |  |
Pre-requisite	Understanding Medieval Gujarati Literature
Course Content	**Unit-1:** Pada-Literary Forms and Features **Unit-2** : Meera Na Pado, (Ed.) Bhupendra Patel, Parshva Prakashan, Ahmedabad **Unit-3** : Prabandh-Forms and Features **Unit-4** : Kanhadde Prabandh, Padmanabh, (Ed.) Ramesh Shukla, Parshva Prakashan, Ahmedabad
Reference Books	1. *Meera Ni Kavita -.Ek Alochanatmak Adhyayan* - Bhaktiprabha Shukla, Arunoday Prakashan 2. *Meera-Gujarati Granth Shreni-8* - Hasit Buch, Kumkum Prakashan 3. *Padmanabha - Gujarati Granth Shreni-3* - Dr. K.B. Vyas, Kumkum Prakashan 4. *Kanhadde Prabandh* - K.H. Dhruv 5. *Prachin Sahitya Swarup* -BhogilalSandesara, M.S. University 6. *Swadhyay Ane Sanshodhan* - Balvant Jani, Sahitya Akademi *1. Gujarati Sahityano Itihas Granth-2,* (Ed.) Umashankar Joshi, Anantrai Raval, Yashvant Shukla 8. *Meera* - Niranjan Bhagat 9. *Madhyakaleen Gujarati Sahityano Itihas* - Ramesh Trivedi 10. *Sahitya Swarup* - Kunjvihari Mehta, Jayant Patel *11. Gujarati Sahitya Kosh, Bha -3*
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	his course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

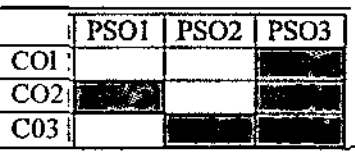
Course: 1901130103040003: LITERATURE AND OTHER ARTS P-14 (C)

Course Code	1901130103040003
Course Title	LITERATURE AND OTHER ARTS
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	▪ Understanding various art forms and their inter-personal relationship based on their respective mediums.
Course Objective	To develop an understanding regarding the relationship between Literature and other Arts.
Course Outcomes	**CO1:The** students will learn about art forms other than literature like painting, sculpting, dance, music etc. **CO2:The** students will learn about how other art forms helps them understanding literature better. **CO3:The** students will develop a clear vision and understanding related to literature.
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 | | CO2 | | CO3 | | 
Pre-requisite	Understanding literature and other art forms
Course Content	**Unit-1** : Literature and Painting **Unit-2** : Literature, Sculpture and Architecture **Unit-3** : Literature, Drama and Films **Unit-4** : Literature and Music, Dance
Reference Books	1. *Film Kala Vichar*- Abhijit Vyas 2. *Film Jovani Kala-Abhijit* Vyas 3. *Kalanu Samajshastra* - Axay Desai, R.R. Sheth Prakashan 4. *Kala Saundarya Shastra* - C.V. Mehta 5. *Shruti-Gujarati Geetane Swarup* - Sanjay Dave 6. *Shilp Samipe* - Kanu Suchak 7. *Samipyana Vividh Anko* - (Ed.)Ramajibhai Savaliya, BJ. Vidyabhavan 8. *Gujaratnu Murtividhan-Ramajibhai* Savaliya, B.J. Vidyabhavan 9. *Steps of* Indology-Ramajibhai Savaliya, B.J. Vidyabhavan
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assi nment, Guest Lectures
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and ttendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 1901130103050001: AUTHOR: "MOHAN PARMAR" P-15 (A)

Course Code	**1901130103050001**
Course Title	**AUTHOR: "MOHAN PARMAR"**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understanding a particular author and his/her entire body of works of art.
Course Objective	Students will get acquainted with the author and his works.
Course Outcomes	**CO1:**The students will learn in detail about a particular author and his entire corpus of literary works. **CO2:The** students will get inspired to read other writers in totality. **CO3:The** students will study different forms of literature written by an author.
Mapping between COs with PSOs	COi CO2 CO3 **PSOI_ PS021**
Pre-requisite	Understanding a particular author and his/her works of art
Course Content	**Unit-1** : Introduction to the Author: Factors that shaped the creative personality of Mohan Parmar **Unit-2:** Literary Works of the author Mohan Parmar **Unit-3:** 'ChunteliVartao: Mohan Parmar' - Mohan Parmar, Gujarati Sahitya lAk.ademi **Unit-4:** 'Sankat', Mohan Parmar, Rannade Publication, Ahmedabad
Reference Books	1. *Gujarati Navalakatha* - Raghuveer Chaudhari, Radheshyam Sharma, University Granth Nirman Board 2. *Mohan Parmar Ni Vartashrushti,* (Ed.) My Dear Jyu 3. *Mohan Parmar Ni PratinidhiVartao,* (Ed.)Radheshyam Sharma 4. *Mohan Parmar: Varta, Asvad and Adhyayan,* (Ed.) Harish Vatavvala 5. *Ko/aha!* - Mohan Parmar 6. *Nakalang* - Mohan Parmar 7. *Kumbhi* - Mohan Parmar 8. *Poth* - Mohan Parmar 9. *Anchalo* - Mohan Parmar 10. *Gujarati Dalit Sahitya-Swadhyay ane Samiksha* -{Ed.) Mohan Parmar, Harish Mangalam 11. *Vartasandarbh*- Sharifa Vijaliwala 12. *Vishesh* - Ila Nayak 13. *Anubandh* - Jayesh Bhogayata 14. *Mohan Parmar Ni Vartaoma Dali! Chetna*- Naresh Vaghela
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course:1901130103050002: APPROACHES OF CRITICISM P-15 (B)

Course Code	1901130103050002
Course Title	APPROACHES OF CRITICISM
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understanding different approaches of criticism
Course Objective	Students will get acquainted with various aspects of Critical Approaches.
Course Outcomes	**CO1:** The students will learn the art of analysing a literary text critically. **CO2:** The students can secure job in a counselling centre because of having socio-psychological attitude towards life. **C03:** The students will be able to enhance their understanding of literature.
Mapping between COs with PSOs	
Pre-requisite	Understanding different approaches of criticism
Course Content	**Unit-1** : What are the different approaches of Criticism? An introduction to the different approaches **Unit-2:** The difference between -approach and -ism. **Unit-3** : Psychological Approach Text:*Vansno Ankur* -Dhiruben Patel, Gurjar Prakashan, Ahmedabad **Unit-4** : Feminism
Reference Books	1. *Shabdlok* - Pramod kumar Patel 2. *Vivechanni Bhumika* - Pramod kumar Patel 3. *Nava Vivechan Pachhi* - Suman Shah 4. *Sanrachana ane Sanrachan* - Suman Shah 5. *Vivechanna Vividh Abhigamo* 6. *Sambhuti* - Ramesh Shukla, Gur ar Prakashan
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

	PSO1	PSO2	PSO3
CO1			
CO2			
C03			

Master of Arts (Gujarati): 4th Semester

Course: 2

001130104010001: WORLD LITERATURE P-16

Course Code	001130104010001
Course Title	WORLD LITERATURE
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	65 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understanding prominent literary movements of World Literature like Colonial Literature, Black Literature, Women's Writing etc.
Course Objective	Introducing students to World Literature and its Seminal Texts
Course Outcomes	**CO1:** The students will be able to make a comparative analysis between Gujarati Literature & Indian Literature and Western Literature. **CO2:** The students will come to know about movements at national and international levels. **CO3:** The students may get inspired to learn a foreign language and thereby e/she improves his/her employment opportunity.
Mapping between COs with PSOs	PSO1 / PSO2 / PSO3 CO1 ■ / ■ CO2 ■ / ■ CO3 / ■
Pre-requisite	Understanding World Literature and its impact on other literatures of the sub-continent
Course Content	**Unit-1** : World Literature: Definition and Concept, General Literature, National Literature, Literature of Indian Sub-continent, Dalit Literature, Colonial Literature **Unit-2:** Introduction to Important World Literary Texts **Unit-3:** Oedipus- Sophocles, Translation: *Subhash Shah, Arunoday Publication* **Unit-4:** Not Without My Daughter - Betty Mahmoody, *Aruna Jadeja, R.R. Sheth Publication, Ahmedabad*
Reference Books	1. *Gyan Gangotri* - Vishva Sahitya 2. *Tulnaatmak Sahitya* -Dhiru Parikh 3. *Tulnaatmak Sahitya ni Disha ma* -Ashvin Desai 4. *Tulnaatmak Sahitya Videshi* Sandarbh-Chaitanya Desai 5. *Svaadhyay-Dr.* Damayanti Parmar 6. *Tulnaatmak Sahitya ni Bhoomika* -Indranath Chaudhari 7. *Tulnaatmak Sahitya* -Prasad Brahmbhatt 8. *Gujarati Anuvad Vichar-Dr.* Jayanti Chaudhari, Flamingo Publication 9. *Vishva Navalkatha-Suman* Shah 10. *Greek Tragedy-Ramesh* Oza, Sahitya Sankul 11. *Kaaya Laakdani Maaya Lugdani-Jayanti* Dalal 12. *Natak Vishe-Jayanti* Dalal
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 2001130204020001: LINGUISTICS - II P-17

Course Code	**2001130204020001**
Course Title	**LINGUISTICS - II**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understand and learning linguistics and phonetics
Course Objective	To make students understand authentic Gujarati morphology and syntax. o acquaint students with the contributions of Gujarati linguists as well as etymology.
Course Outcomes	**COl:The** students may become speech therapist by learning phonetics properly. CO2:Proficiency in language may lead to securing a job in the field of radio or elevision. **C03:** The students will learn about the English Phonetics through learning Gujarati Phonetics.
Mapping between COs with PSOs	PSO1 PSO2 PSO3 COI CO2 CO3
Pre-requisite	Understanding and learning linguistics and phonetics
Course Content	**Unit-1** : Authentic Gujarati Morphology **Unit-2:** Idea of Syntax in Gujarati **Unit-3** : Idea of Etymology **nit-4** : Contribution of Linguists in Gujarati
Reference Books	*1. Bhasha vigyan - (avruti - 1978)- Dr.KB.Vyas* *2. Bhasha Parichay- Popular publication, Surat* *3. Gujarati Bhashanu Dwanisvarup ane Dwani Partivartan - Dr.Prabodh Pandit* *4. Dhwani Ghatakni Vibhavna- Dr.Bharatiben Dave* *5. Bhasha · parichay ane Gujarati Bhashanu Svarup - Jayant Kothari* *6. Vyutpatti Vichar - Dr.Harivallabh Bhayani* *7. Tulnatmak Sahityani Bhumika- Indranath Chaudhari* *8. Gujarati Dhwani Vyavsthani Vicharna - Pinki Pandya* *9. Bhashavigyan Parichay- Ramesh Trivedi* *JO. Gujarati Vyakran Pravesh-Ashrajkhan Pathan* *1J. Thodok Vyakran Vichar - Dr. Harivallabh Bhayani* *12. Shabd ane Parisi/an - Dr. Harivallabh Bhayani* *13. Gujarati Bhasha - Dr. T.N Dave* *14, Vyakran Vimarsh - Dr. Urmi Ghansyam Desai* *15. Vyakran: Arth ane Aakar - Dr. Prabodh Pandit* *16. Gujarati Vakayrachana - Dr. Prabodh Pandit* *17. Gujarati Bhasha ane Sahitya (Narsinhrav Divetiyana be Bhagma Pragat* Cl *Thayela Vyakhyan Pustakono Shankshep - KK Shastri)*
Teaching Methodology	Lecture, Discussion, Self-Study, Seminars and/or Assignment, Guest

Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at .he university examination.

Course: 2001130104030001: FOLK LITERATURE-II P-18

Course Code	2001130104030001
Course Title	**FOLK LITERATURE - II**
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understanding the folklore and folk literature of tribal region especially as well as other parts of Gujarat.
Course Objective	Introducing students to Folk & Tribal Literatures
Course Outcomes	**COl:** The students will learn about the motifs, myths and traditions and customs oftribal's. **CO2:** The students may develop a keen interest in researching from the point of view of Anthropology. **C03:** The students will learn more about Sociology with the help of tribal folk literature.
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 COl | [redacted] | | [redacted] CO2 | | | [redacted] C03 | | [redacted] | [redacted]
Pre-requisite	Understanding folk traditions of Gujarat, especially tribal literature
Course Content	**Unit-1:** **a)** Gujarati Folk Literature: History of Research and Editing **b)** Tribal Folk Literature: History of Research and Editing **Unit-2:** **a)** Problems in Research-Editing in Folk Literature **b)** Important Contributors in Research-Editing in Folk Literature: *Jhaverchand Meghani, Joravarsinh Jadeja, Khodidas Parmar, Hasu Yagnik, Bhagvanbhai Patel, Dahyabhai Vaadhu* **nit-3: Folk-Tale** **nit-4: Study of Literary Texts**
Reference Books	1. *Gujarati Loksahitya Vimarsh* -Balvant Jani, Parshva Publication 2. *Konkani Lok Kathao: Ek Abhyas* -Prabhu Chaudhari 3. *Kunkana* Kathao-DahyabhaiVaadhu, Sahitya Akademi, Delhi 4. *Gujarat ni Lok Sanskruti-Dr.Hasutaben* Saidani, University Granth Nirman Board, Ahmedabad 5. *Gujarati Adivasi Sahitya* -(Ed.) Hasu Yagnik, Gujarati Sahitya Akademi, Gandhinagar 6. *Loksahitya* -(Eds.) Prabhashankar Taraiya, Narottam Palan, Publisher: Gujarati Sahitya Parishad, Ahmedabad 7. *LokSahitya-Aalok-Jashvant* Shekhadiwala, Parshva Publication, Ahmedabad 8. *Lok Katha na Mul ane Kul-Dr.* Harivallabh Bhayani, Parshva Publication, Ahmedabad 9. *Gujaratna AdivasiNrutyo* -(Eds.) Vikram Chaudhari, Dhirubhai Patel, Bhasha Sanshodhan Prakashan Kendra 10. *Vaarali Naarandevni Katha-Dr.* A.A. Shaikh
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures

Evaluation Method	Ifhis course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at he university examination.

Course: 2001130104040001: LITERATURE & PSYCHOLOGY P-19 (A)

Course Code	2001130104040001
Course Title	LITERATURE & PSYCHOLOGY
Credit	4
Teachin er Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understanding the relationship between literature and psychology. • Understanding the psychology of characters helps in knowing thei personality well.
Course Objective	Introducing students to the inter-relationship of Literature and Psychology
Course Outcomes	**COl:The** students will learn about the abnormal behaviour of the characters and hereby they can be sensitized towards such behaviour of their near and dear nes. They can even extend a helping hand to them. **CO2:** The students may get a job opportunity in a counselling centre based on heir knowledge. CO3:The students will be able to analyze the literary text better from a psychological dimension.
Mapping between COs with PSOs	PSO1 PSO2 PSO3 COl CO2 CO3
Pre-re uisite	Understanding the inter-relationship between literature and sychology
Course Content	**Unit-1:** Literature and Psychology: Basic Concepts and Scope **Unit-2:** Inter-relation of Literature and Psychology **Unit-3:** Andhali Gali - Dhirubahen Patel,Gurjar Prakashan, Ahmedabad **Unit-4:** Mahaabhinishkraman - Mukund Parikh
Reference Books	1. *Shabdbodh* - *Gunvant Vyas* 2. *Vivechanni Bhoomika* - *Pramodkumar Patel* 3. *Gujarati Kathavishva* - *Babu Davalpura* 4. *Kathayog* - *Naresh Ved* 5. *Gujarati Navalkatha Fer Vichaarana* - *Jashvant Shekhadivala* 6. *Dhirubahen Patel nu Laghunaval Vishva* - *Dr. Mahesh Patel* 7. *DhiruBahen* - *Kalpana Dave* 8. *Samatva* - *Bharat Thakar*
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	his course has 04 credits during the semester. The internal evaluation will be out of20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at he university examination.

Course: 2001130104040002: CONTEMPORARY TEXTS P-19 (B)

Course Code	2001130104040002
Course Title	CONTEMPORARY TEXTS
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understanding Contemporary Literature
Course Objective	Introducing students to the characteristics of Contemporary Literature
Course Outcomes	**CO1:** The students will learn about the literature of contemporary times. **CO2:** The students will get familiar with contemporary issues. **CO3:** The students will be able to understand the contemporary times better.
Mapping between COs with PSOs	PSO1 PSO2 PSO3 CO1 CO2 C03
Pre-requisite	Understanding contemporary literature
Course Content	**Unit-1:** Introduction to the life m;id works of Swami Anandand his contribution Ub Character Essays **Unit-2:** *Naghrol* - Swami Anand, Navbharat Publication, Ahmedabad **Unit-3:** Form and Characteristics of Short Story **Unit-4:** *Bapa Ni Pipar-KiritDudhat,* Navbharat Sahitya Mandir
Reference Books	2. *Bapani Pipar* - *Kirit Dudhat, Navbharat Sahitya Mandir* 3. *Swarup Sannidhan* - *Suman Shah* 4. *Anubandh* - *Jayesh Bhogayata* 5. *TunkiVarta ane Gujarati TunkiVarta - Editor: Jayant Kothari* *TunkiVarta Sahitya SwarupShreni - Vijay Shastri* 6. *TunkiVarta Sahitya Swarup- Jayant Pathak* 7. *TunkiVarta ma Kathankendra - Sharifa Vijaliwala* 8. *Sahitya SvarupShreni - Suman Shah* 9. *Sahitya Akademi Sarjak Sidi*
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/orAssignment, Guest Lectures
Evaluation Method	his course has 04 credits during the semester. The internal evaluation will be out of20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 2001130104040003: LITERATURE & AESTHETICS P-19 (C)

Course Code	2001130104040003
Course Title	LITERATORE & AESTHETICS
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understanding literary texts based on the principles of aesthetics
Course Objective	Introducing students to and developingtheir understanding about literature and aesthetics.
Course Outcomes	**CO1:** The students will develop reader-centric approach to literature. **CO2:** The students will learn about the philosophy of Eastern & Western Worlds. **CO3:** The students will be able to analyze any literary text based on their understanding of Eastern-Western philosophy.
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 CO1 CO2 C03
Pre-requisite	Understanding the relationship between literature and aesthetics.
Course Content	**Unit-1:** What is Aesthetics? Concept, Scope and Limitations **Unit-2:** Definition of Aesthetic-Creation and Enjoyment in Indian Aesthetics **Unit-3:** Tradition and Aesthetic Cerebration in Western Aesthetics **Unit-4:** Impact of Various - isms and School of Thoughts on Aesthetics
Reference Books	1. *Vividh Sahityik Vaad-* (Ed.) Amrutlal Yagnik, Yashvant Trivedi 2. *Aadhunikata ane Gujarati Sahityama Aadhunikta* - Suman Shah 3. *Kala Mimaansa Sannidhan* - Suman Shah 4. *Kalaa Saundarya Shastra* - C.V. Maheta, Parshva Publication 5. *Saundarya Shastra* -R.B. Patankar 6. *Veeksha ane Nireeksha* - Nagindas Parekh, Gu'arati Sahitya Parishad
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 2001130104050001: LITERARY JOURNALISM P- 20 (A)

Course Code	2001130104050001
Course Title	LITERARY JOURNALISM
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understanding the difference between journalism and literary journalism as well as its significance.
Course Objective	Introducing students to Literature and Journalism
Course Outcomes	**CO1:The** students will learn about history along with literature through literary ournals and magazines. **CO2:The** students will learn about literary discourse through this course. **CO3:The** students will become aware about the documentation of literary history.
Mapping between COs with PSOs	PSO1 / PSO2 / PSO3 COi / / [redacted] CO2 / / [redacted] C03 / / [redacted]
Pre-requisite	Understanding literary journalism
Course Content	**Unit-1:** Literary Journalism: Form, Objective and Scope, Mediums, Newspaper and Literary Magazines **Unit-2:** History of Gujarati Literary Journalism: Emerging Factors, Development of Gujarati Literary Journalism **Unit-3:** Evaluation of works of Chief Literary Editors: *Vijayray Vaidya, R.V. Pathak, Umashankar Joshi, Bachubhai Raval, Suresh Joshi* **Unit-4:** Contribution of Chief Literary Magazines in Literature: *Daandiyo, VeesmiSadi, Sanskruti, Farbas, Pra aksh*
Reference Books	1. *Samvidna Te}Valay- Kishor Vyas* 2. *Sahityarangi Patrakaratva* 3. *Nepathyathi Patrakaaratva - Raman Soni, Parshva Publication, Ahmedabad* 4. *Gujarati Patrakaratva- Yasin Dalal* 5. *Sahitya ane Patrakaratva - Editor: Kumarpal Desai*
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Course: 2001130104050002: NARRATOLOGY P-20 (B)

Course Code	2001130104050002
Course Title	NARRATOLOGY
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holidays etc.)
Effective From	June 2021
Purpose of Course	• Understanding narrative style of literary texts
Course Objective	Introducing students to Narratology
Course Outcomes	**CO1:** The students will learn the art of analysing short stories and novels. **CO2:** The students will learn the difference between drama and narrative forms of literature. **CO3:** By understanding narratology, the students will learn more about drama, film, narrative poetry etc.
Mapping between COs with PSOs	PSO1 / PSO2 / PSO3 CO1 / [redacted] / [redacted] / [redacted] CO2 / [redacted] / [redacted] / [redacted] CO3 / [redacted] / [redacted] / [redacted]
Pre-requisite	Understanding narratology
Course Content	**Unit–1:** Narratology **Unit-2:** Relation Between Other Elements and Point of View in Short Story **Unit-3:** Contribution of Chief Thinkers of Narratology **Unit-4:** Analysis of Selected Gujarati Short Stories from the Point of View of Narratology
Reference Books	1. *Special Issue of 'Vaak'*- (Ed.) Balvant Jani 2. *Anuaadhunik Sahitya SangyaKosh*- (Eds.) Jayant Gaadit, Rajendra Jadeja 3. *Special Issue of 'Tathaapi' related to Narratology* - Issue: 25-26, Year: 2011-2012 4. *Katha Anusandhan* - Jayesh Bhogayata 5. *Navalkatha ma Samay Sandarbh, Samay Sankalana* - Ajay Raval 6. *Sambodhya Shrota Swarup: Vibhavna, Prakruti ane Kaaryshilta* -Urvi Tevar 7. *Katha Vimarsh* - Naresh Ved 8. *TunkiVarta ma Kathankendra* - Sharifa Vijaliwala 9. Dictionary of Narratology- Gerald Prince 10. Introduction to Narratology - Mieke Ba
Teaching Methodology	Class work, Discussion, Self-Study, Seminars and/or Assignment, Guest Lectures
Evaluation Method	This course has 04 credits during the semester. The internal evaluation will be out of 20 marks, based on Unit Test marks, Library assignments and attendance marks; while the external evaluation will be out of 50 marks at the university examination.

Re-Accredited by NAAC with 'A' Grade
VEER NARMAD SOUTH GUJARAT UNIVERSITY
University Campus, Udhna-Magdalla Road, SURAT - 395 007, Gujarat, India.
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Tel: +91-261-2227141 to 2227146, Toll Free: 1800 2333 011, Fax: +91-261-2227312
E-mail : info@vnsgu.ac.in, Website : www.vnsgu.ac.tn

Circular

This is to bring into the notice of all the principals of the affiliated colleges Running PG Centre in Gujarati and all Heads of Departments of the university the syllabus for M.A. Sem-1 and 4 (New) Regular and M.A. Part-.1 and 2External - Proposed by the BOS of Gujarati Subject in the meeting dated on 25-08-2021, was acknowledged by the dean of Faculty of Arts in anticipation of getting it_ getting it sanctioned by the faculty of the Arts in order to implement it for the academic years of 2021-22,2022-23 and 2023-24; which has been sectioned in the meeting the academic council dated on 31-8-2021 through resolution no.30 The same should be informed to all concerned teachers and studel1;ts and should be put into practices as well.

Resultion No. 23 of meeting of Academic council dated on 31-08-2021

It has been <leaded that the syllabus for M.A. Sem-1 to 4 (New) Regular and M.A. Part 1& 2 External - Proposed by the BOS of Gujarati Subje t in the meeting of 25/08/2021, acknowledged y the Dean of Faculty of Arts in anticipation of getting it Sanctioned by the faculty of Arts in order to implement it for the academic years of 2021-22, 2022-23 and 2023-24 is Sanctioned.

Resolution No.AK/Paripatra/132337/2021
Dt.03/09/2021

Sd
Registrar

(Translated from Gujarati into English)
I/C Registrar
Veer Narmad South Gujarat University
SIJRA1.

Ph.D. (Gujarati)

Name of Program	**Ph.D.**
Abbreviation	**Ph.D**
Duration	**40 Hours**
Eligibility Criteria	MA./M.Phil/JRF/NET/SLET/GATE
Objective of Program	1. Introducing students to the area of research as well as to the difference between Research and Criticism 2. Introducing students to the problems of Medieval Research in Literature and Folk Literature 3. Introducing the students to major medieval researchers and editors 4. Introducing students to challenges and solutions of interdisciplinary research 5. Introducing students to different literary forms and different techniques.
Program Outcome	**PO1:** The Students will be able to comprehend the fine line of distinction between research and criticism **PO2:** The Students will be able to broader their horizon of knowledge and understanding through interdisciplinary Studies and research and thereby would be able to grasp cross- section, cutting-edge and interdisciplinary issues within the literary texts. **PO3:** The Students will be able to develop & would be better equipped with linguistic skills and critical thinking.
Program Specific Outcomes	**PSO1:** Students will learn about challenges and solutions of Interdisciplinary research. **PSO2:** Students will learn about different literary forms & techniques and different approaches of criticism **PSO3:** Enhance Student's employment opportunities by his better linguistics skills & critical thinking.
Mapping between POs and PSOs	
Medium of Instruction	Gujarati

	PSO1	PSO2	PSO3
PO1			
PO2			
PO3			
PO4			

Ph.D. (Gujarati)

Paper – 1 Literary Research: Structure, Methodology, Possibilities and Approaches

<table>
<tr><td>Course Code</td><td>9001</td></tr>
<tr><td>Course Title</td><td>Literary Research: Structure, Methodology, Possibilities and Approaches</td></tr>
<tr><td>Credit</td><td>3</td></tr>
<tr><td>Teaching per Week</td><td>4 Hours</td></tr>
<tr><td>Minimum weeks per Semester</td><td>12 weeks</td></tr>
<tr><td>Effective From</td><td>June 2021</td></tr>
<tr><td>Purpose of Course</td><td>The Students will be able to comprehend the fine line of distinction between Research & Criticism</td></tr>
<tr><td>Course Objective</td><td>a) Introducing students to the area of research as well as to the difference between Research and Criticism
b) Introducing students to different tools of research, i.e., the use of computer and dictionary and Encyclopaedias.
c) Introducing students to the different approaches of criticism</td></tr>
<tr><td>Course Outcomes</td><td>CO1: The Students will be able to comprehend the fine line of distinction between research and criticism
CO2: The Students will be able to develop & would be better equipped with linguistic skills and critical thinking.
CO3: The Students will be able to become resourceful competent prospective academicians.</td></tr>
<tr><td>Mapping between COs with PSOs</td><td><table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td></tr><tr><td>PO1</td><td></td><td></td><td></td></tr><tr><td>PO2</td><td></td><td></td><td></td></tr><tr><td>PO3</td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>Pre-requisite</td><td></td></tr>
<tr><td>Course Content</td><td>Unit-1: What is Literary Research?
Unit-2: Relation of Literary Research and Literary Criticism
Unit-3: Approaches of Criticism: General Introduction
Unit-4: Helpful Tools in Research and Research Methodology</td></tr>
<tr><td>Reference Books</td><td>1. Vividh Sahityik Vaado–AmrutlalYagnik and Others
2. Sahityik SanshodhanVishe– Suman Shah, Parshva Publication, Ahmedabad
3. Sahityik Sanshodhan– C.P. Vyas, University Granth Nirman Board
4. Vivechanna Vividh Abhigamo– Pramod Kumar Patel
5. Ketlak Sahityik Vivaado–Dhirubhai Thakar, Gurjar Vishvakosh Trust
6. Gujarati Sahity Kosh (Volume: 1,2,3)– Gujarati Sahitya Parishad, Ahmedabad
7. Samvivaadna Tejvalayo– Kishor Vyas, Parshva Publication
8. Sathiyama Aadhunikta– Suman Shah, Gujarat University, Ahmedabad
9. Nepathvethi PrakashVartulma–(Ed.) Raman Soni</td></tr>
</table>

	Parshva Publication, Ahmedabad 10. Sahityik Saamayiko–(Ed.) Hasit Maheta, Parshva Prakashan, Ahmedabad
Teaching Methodology	
Evaluation Method	

Paper – 2 : Literary Research with Reference to Medieval and Folk Literature

Course Code	9002
Course Title	Literary Research with Reference to Medieval and Folk Literature
Credit	3
Teaching per Week	4 Hours
Minimum weeks per Semester	12 weeks
Effective From	June 2021
Purpose of Course	Introducing Students about how to read manuscripts, how to conclude final text of folk or medieval Literature
Course Objective	a) Introducing students to the problems of Medieval Research in Literature and Folk Literature b) Introducing the students to major medieval researchers and editors c) Introducing the students to major folk literature researchers and editors d) Introducing students to manuscriptology
Course Outcomes	**CO1:** Students will learn about manuscripts **CO2 :** Students will learn about how to conclude final medieval text and folk text. **CO3:** Students will learn about Folk Lore, about our culture
Mapping between COs with PSOs	PSO1 | PSO2 | PSO3 PO1 PO2 PO3
Pre-requisite	
Course Content	Unit-1: General Introduction to Medieval and Folk Literature Unit-2: Research Methods: Medieval Research Unit-3: Research of Folk-Literature Unit-4: Students have to prepare and submit a project on practical basis on any one topic.
Reference Books	1. *Saahityik Tathyoni Maavajat*–Jayant Kothari, Gurjar Granth Ratna Karyalaya; Ahmedabad 2. *MadhyakaalinSaahityano Itihaas* –Gujarati Sahitya Parishad, Ahmedabad 3. *Lokvaangmay* –KanubhaiJani 4. *Mari Lokyaatra* –Bhagvandas Patel, Nayan Suryanand Lokpratishtha, Mumbai 5. *Loksaahitya: Svaadhyayane Sanshodha* –(Ed.)BalvantJani 6. *Loksaahitya: Sanshodhanane Sampadan* –HarivallabhBhayani 7. *Akho: Ek Adhyayan* –Umashankar Joshi, Gurjar Granth Ratna Karyalaya, Ahmedabad 8. *LokSaahityanu Samaalochan*–Jhaverchand Meghani, Gurjar Granth Ratna Karyalaya, Ahmedabad 9. *Loksaahitya: Pagdandino Panth*–Jhaverchand Meghani, Gurjar Granth Ratna Karyalaya, Ahmedabad 10. *Saurashtrana Khanderoma*–Jhaverchand Meghani, Gurjar Granth Ratna Karyalaya, Ahmedabad 11. *Umashankarno Vaagvaibhav*–Chandrakant Sheth. Guiarati

	Sahitya Parishad, Ahmedabad 12. *Loksahitya Vigyan* –HasuYagnik, Divine Publication, Ahmedabad 13. *Lokvidya: Parichay*– HasuYagnik, Gujarat Vishvakosh Trust, Ahmedabad 14. *Chandaahaas Aakhyan*–(Ed.) Raman Soni, Gujarati Sahitya Parishad, Ahmedabad 15. *Aaramshobha Raasmaala*–(Ed.) Jayant Kothari 16. *Madan Mohanaa*–(Ed.)Harivallabh Bhayani 17. *Loksaahityaane Sambandhit Vidyashastro*–(Ed.) Prashant Patel, Bharat Kheni, Nilesh Makvana, Publisher: N.S. Patel, Arts College, Anand 18. *Lokaanusandhaan–Lokparampara*–Laabhshankar Purohit, Gujarati Sahitya Akademi, Gandhinagar
Teaching Methodology	
Evaluation Method	

Paper – 3 Contemporary Literary Research

Course Code	9003
Course Title	Contemporary Literary Research
Credit	3
Teaching per Week	4 Hours
Minimum weeks per Semester	12 weeks
Effective From	June 2021
Purpose of Course	The Students will be able to broader their horizon of knowledge and understanding through interdisciplinary studies & literary theory
Course Objective	a) Introducing students to challenges and solutions of interdisciplinary research b) Introducing students to different literary forms and different techniques.
Course Outcomes	**CO1:** Students will learn about interdisciplinary research. **CO2:**To trained them for Research Methodology . **CO3:** The Students will be able to become resourceful Competent Prospective academicians.
Mapping between COs with PSOs	
Pre-requisite	
Course Content	**Unit-1: Interdisciplinary Research** **Unit-2: Research Related to Author, Books and Forms** **Unit-3: Researches about Literary Techniques** **Unit-4: Students have to prepare and submit synopsis on any one topic.**
Reference Books	1) Gujarati Saahityano Itihas (Volume: 3 to 8)–Gujarati Sahitya Parishad, Ahmedabad 2) Rachnaane Sanrachana–Harivallabh Bhayani 3) Naatakmamyth–Dhwanil Parekh, Parshva Publication, Ahmedabad 4) Tunki Vaartama Kathankendra–Sharifa Vijaliwala, Samvaad Publication,Vadodara 5) Khand Kavya: Swarupane Vikas –Chinu Modi, Parshva Publication, Ahmedabad 6) Tulnaatmak Sahitya –Dhiru Parikh 7) Tulnaatmak Sahitya–Vasant Baapat 8) Anuvaad-Vicharane Anuvaad-Prakriya–(Ed.) Raman Soni, Pratyaksh Publication 9) Anuvaad: Siddhantane Samiksha –(Ed.) Raman Soni, Sahitya Akademi, Delhi 10) Anuvaad: Vigyan, Siddhantevam Pravidhi–Bholanath Tiwari, Kitabghar Publication, Delhi 11) Anuvaadni Samasyao–Mohanbhai Patel 12) Sahitya Parishadna Kaam (Volume: 1,2,3)–Gujarati

	PSO1	PSO2	PSO3
PO1			
PO2			
PO3			

	Sahitya Parishad, Ahmedabad 13) Vishvakosh (Volume: 1 to 25) 14) Aadhunik Gujarati Tunki Vartama Kapol KalpananoViniyog–IlaNayak, Rangdvaar Publication, Ahmedabad 15) Khand Kavya: Swarupane Vikas –Chinu Modi, Parshva Publication, Ahmedabad 16) Ushanas: Sarjakane Vivechak–Raman Soni, Gurjar Publication, Parshva Publication, Ahmedabad 17) Svaatantryottar Gujarati Kavita: Paridarshan–Daxa Vyas, Adarsh Publication, Ahmedabad 18) Prabodhkaalnu Gadya–Natvarsinh Parmar, Gujarati Sahitya Parishad, Ahmedabad 19) Gandhi Yugnu Gadya –Dalpat Padhiyar, Gujarati Sahitya Parishad, Ahmedabad 20) Gadhya Vimarsh–Vinod Adhvaryu, Adarsh Publication, Ahmedabad 21) Kaavyabaani–Nitin Maheta, Xitij Sanshodhan Prakashan Kendra,Mumbai 22) Katha Ghatak–Swarup Dhruv / Pinakini Pandya
Teaching Methodology	
Evaluation Method	

Course: Creative Writing

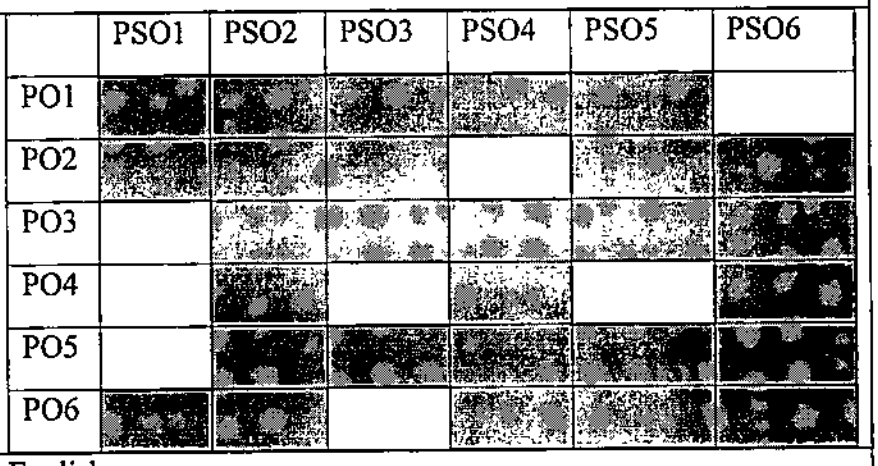
Course Code	
Course Title	Creative Writing Certificate Course
Credit	2
Teaching per Week	2 Hrs
Minimum weeks per Semester	60 Hours (6 Month)
Effective From	June-2014
Purpose of Course	It will give a finishing touch to student's creative talent
Course Objective	The purpose of this certificate course is to develop the talent of creative writing to make student learn the science of creative writing
Course Outcomes	**CO1:** It will enable student to be employed in journalism **CO2:** Student can write blog, column and can become RJ or can work on TV channels **CO3:** Employment Opportunities open up through Knowing the craft of theatre and script writing

Course: Proof Reading

Course Code	
Course Title	**Proof Reading Certificate course**
Credit	2
Teaching per Week	2 hrs
Minimum weeks per Semester	60 Hours (6 Month)
Effective From	June-2014
Purpose of Course	It will give a finishing touch to student's creative talent
Course Objective	This Course aims at teaching the orthographical features which are very essential for language learning.
Course Outcomes	**CO1:** The Students will be proficient in writing Gujarati Language. **CO2:** The Students will learn about the art and skill of Proof-Reading **CO:3:** Student Can get Job at News Paper's Press or any other Publication House.

AQB Ph.D. Course work 1001

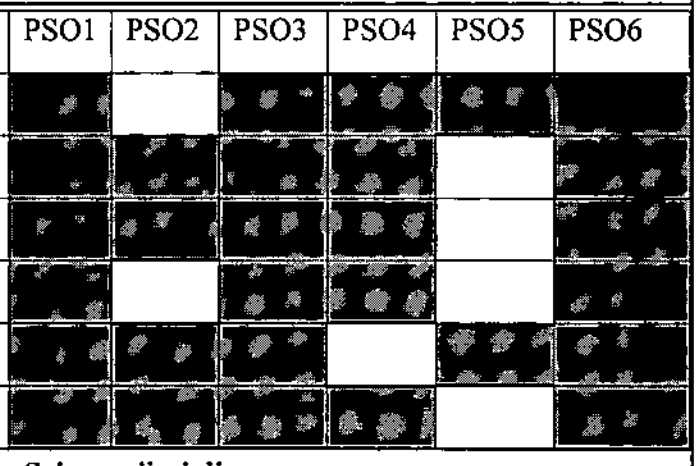
Name of Program	Ph.D. Course work
Abbreviation	AQB
Duration	12 weeks
Eligibility Criteria	A candidate who has been enrolled in Department Ph.D. Course
Objective of Program	The main objective of the course is to strengthen the students for research career in fishery resources management and sustainable utilization of aquatic resources by providing an outstanding environment of teaching and research in the specific aspects of the designed course. This structured course will facilitate students to enhance their research in fishery sector and help in the management of Aquatic pollution. Students will be acquainted with the use of instruments for their research and be capable of formulating research design.
Program Outcome	**PO1 : Basic Knowledge Enhancement** The designed course enhances students with the basic knowledge of the subject matter in order to capable students develop research skills which include laboratory techniques, aqua farm field techniques, disease management in aquaculture sector, feed technology, biochemistry, microbiological assessment, fish genetics, biotechnology and bioinformatics, aquarium setup, ornamental fisheries, marine and freshwater fisheries and Planktonology. **PO2 : Skill Development** The course develops the skills and techniques to use instruments to conduct their research work. **PO3 : Familiar with Advanced Emerging Technologies** The course trains students with the latest technologies that is being used in the aquaculture sectors and aquatic pollution management. **PO5 : Familiar with advances in fishery and analytical research** The course will make research scholar acquaint with advance technologies in fishery sector and their implementation in field. Healthy discussion in recent technology and pollution amendments and fisheries ttechnology enables acquaintances of the students with the practical aspects. Students will be capable of analyzing the field data's . **PO6 : Familiar with technical aspect**

	The designed syllabi enrich students with the technical aspects to identify aquatic problems in the natural environment and input the remedial measures.
Program Specific Outcomes	PSO1: Develop and strengthen the basic knowledge and concepts that are required to manage fishery resources. PSO2: Enhance the student capacity to formulate and develop research design. PSO3: Raising the students capable for handling instruments and use of latest technology to find remedial measures with respect to fisheries and pollution. PSO4: Develop students for self-learning and challenging situation in aquaculture sectors. PSO5: Enable students to use recent technologies for analysing the research and practical concepts. PSO6: Development for incessant learning and research for successful academic and industrial career.
Mapping between POs and PSOs	
Medium of Instruction	English
Programme structure	12 weeks

Name of the Paper	Teaching schedule (hrs)	Exam Schedule				Total marks	Credit
		Internal exams		External exam			
		Mode of Evaluation	Marks	Mode of Evaluation	Marks		
AQB 1001: Research Methodology	45	i. Exams ii. Seminar	50	Exam conducted by	50	100	4

& Instrumentation				Uni.,			
AQB 1002: Advances in Fishery science	45	i. Exams ii. Seminar	50	Exam conducted by Uni.,	50	100	4
AQB 1003: Aquatic Pollution	45	i. Exams ii. Seminar	50	Exam conducted by Uni.,	50	100	4
Total			150		150	300	

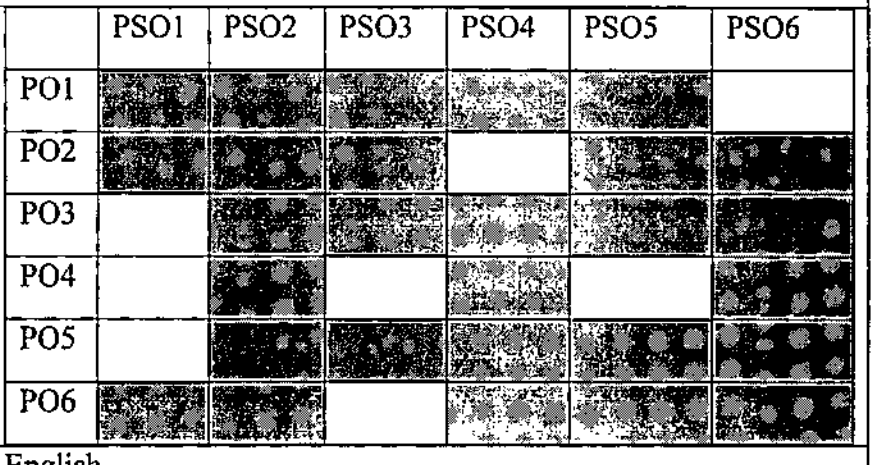
Course Code	1001
Course Title	Research Methodology and Instrumentation
Credit	4
Teaching per Week	2 Hr
Minimum weeks per Semester	12
Effective From	June 2020
Purpose of Course	The purpose of the course is to help scholars to design research and develop the operation skill of the instruments that help to analysis different physical, chemical and biological parameters.
Course Objective	To acquaint the students handling and operation of the instruments and formulate research work.
Course Outcomes	CO1: Help scholar to formulate & design research problem CO2: The course helps the scholars acquaint with methods for statistical analyses and its application in research work CO3: Train the students for handling the instruments in the laboratory. CO4: Explain the principles of the instruments that help them to understand the working of the instrument

	CO5: Make scholar proficient to use the advances technology and instruments to speed up the analysis process with acceptable error level CO6: Make scholars to know the correct application of different instruments in the field of Aquatic Biology.
Mapping between Cos with PSOs	
Pre-requisite	M.Sc. in Science disciplines
Course Content	Unit I Introduction of Research Methodology: Objectives of research, significance of research, type of research, Formulation & designing of research problem Sampling designing Data collection: Methods of Primary and secondary collection Article / Thesis writing Unit II Methods for statistical Analyses Hypothesis testing: Independent and Dependent sample 't' test, Analysis of variance, Correlation and regression, Non parametric tests Statistical Software: Introduction of SPSS, Microsoft EXL Unit III Microtomy: microtome Histological Procedures: Tissue fixation, washing, dehydration, embedding, block preparation, sectioning staining, mounting & photography Unit IV

	Principles and applications of following analytical instruments used for Aquatic Biology GC HPLC AAS PCR LCMS
Reference Books	• C. R. Kothari (2004). Research Methodology: Methods & Techniques, New age international pvt. limited • D K Bhattacharyya (2003). Research Methodology, Excel Books. • Loraine Blaxter, Christina Hughes, Molcolm Tight, How to Research, Viva Books Pvt.Ltd. • Fisher, R. A. (1970) Statistical Methods for Research Workers, l4th Edition, Oliver and Boyd Publ. • Brown, S.B (1980). An introduction to spectroscopy for Biochemists, Academicpress, London, New York. • E.D.P. Robertis and E.M.F. Robertis (2001). Cell and Molecular Biology, Lippincott Williams & Wilkins, London • Hawcroft, D.M. (1996). Electrophoresis. The Basics IRL press, Oxford. • Jenning, W.G. (1993). Analytical Gas chromatography. Academic Press. New York. • Skoogs, H, P.andNieman, M (2006). Principle of Instrumental analysis. Thomson Inc. Ltd.
Teaching Methodology	Classwork, Discussion, Self-Study, ICT
Evaluation Method	50% Internal assessment based on class attendance, seminar, internal examination, etc. 50% External based on University examination

AQB Ph.D. Course work 1002

Name of Program	Ph.D. Course work
Abbreviation	AQB
Duration	12 weeks
Eligibility Criteria	A candidate who has been enrolled in Department Ph.D. Course
Objective of Program	The main objective of the course is to strengthen the students for research career in fishery resources management and sustainable utilization of aquatic resources by providing an outstanding environment of teaching and research in the specific aspects of the designed course. This structured course will facilitate students to enhance their research in fishery sector and help in the management of Aquatic pollution. Students will be acquainted with the use of instruments for their research and be capable of formulating research design.
Program Outcome	**PO1 : Basic Knowledge Enhancement** The designed course enhances students with the basic knowledge of the subject matter in order to capable students develop research skills which include laboratory techniques, aqua farm field techniques, disease management in aquaculture sector, feed technology, biochemistry, microbiological assessment, fish genetics, biotechnology and bioinformatics, aquarium setup, ornamental fisheries, marine and freshwater fisheries and Planktonology. **PO2 : Skill Development** The course develops the skills and techniques to use instruments to conduct their research work. **PO3 : Familiar with Advanced Emerging Technologies** The course trains students with the latest technologies that is being used in the aquaculture sectors and aquatic pollution management. **PO5 : Familiar with advances in fishery and analytical research** The course will make research scholar acquaint with advance technologies in fishery sector and their implementation in field. Healthy discussion in recent technology and pollution amendments and fisheries ttechnology enables acquaintances of the students with the practical aspects. Students will be capable of analyzing the field data's . **PO6 : Familiar with technical aspects**

	The designed syllabi enrich students with the technical aspects to identify aquatic problems in the natural environment and input the remedial measures.
Program Specific Outcomes	PSO1: Develop and strengthen the basic knowledge and concepts that are required to manage fishery resources. PSO2: Enhance the student capacity to formulate and develop research design. PSO3: Raising the students capable for handling instruments and use of latest technology to find remedial measures with respect to fisheries and pollution. PSO4: Develop students for self-learning and challenging situation in aquaculture sectors. PSO5: Enable students to use recent technologies for analysing the research and practical concepts. PSO6: Development for incessant learning and research for successful academic and industrial career.
Mapping between POs and PSOs	
Medium of Instruction	English
Programme structure	12 weeks

Name of the Paper	Teaching schedule (hrs)	Exam Schedule				Total marks	Credit
		Internal exams		External exam			
		Mode of Evaluation	Marks	Mode of Evaluation	Marks		
AQB 1001: Research Methodology & Instrumentation	45	i Exams ii Seminar	50	Exam conducted by Uni.,	50	100	4
AQB 1002: Advances in Fishery Science	45	i Exams ii Seminar	50	Exam conducted by Uni.,	50	100	4

AQB 1003: Aquatic Pollution	45	i Exams ii Seminar	50	Exam conducted by Uni.,	50	100	4
Total			150		150	300	

Course Code	1002
Course Title	Advances in Fishery Science
Credit	4
Teaching per Week	2 Hr
Minimum weeks per Semester	12
Effective From	June 2020
Purpose of Course	The purpose of the course is to develop the skill about executing the different scientific techniques regarding fishery to improve aquaculture production and quality as well as manage fishery resources.
Course Objective	To make the students acquaint regarding advances and approaches in taxonomy and its importance, fish biotechnology, bioinformatics and population studies.
Course Outcomes	CO1 : Inculcate students about taxonomy and its importance which helps in correct identification of fish. It is very important for successful culture practices as well as national and international fish trade. CO2 : This paper describes application of hormonal biotechnology which helps in molecular and genetic diagnostics as well as genetic upgradation of cultivable species with minimum risk of infection. CO3 : Train students to deal with bioinformatics in the field of Aquatic Biology. It provides the skillful digital database information which certainly required for aquaculture and aquatic resource management. CO4: Explain students about fish population dynamics, population studies and stock assessment which helps in regulation of aquaculture sector and aquatic resources.
Mapping between COs with PSOs	

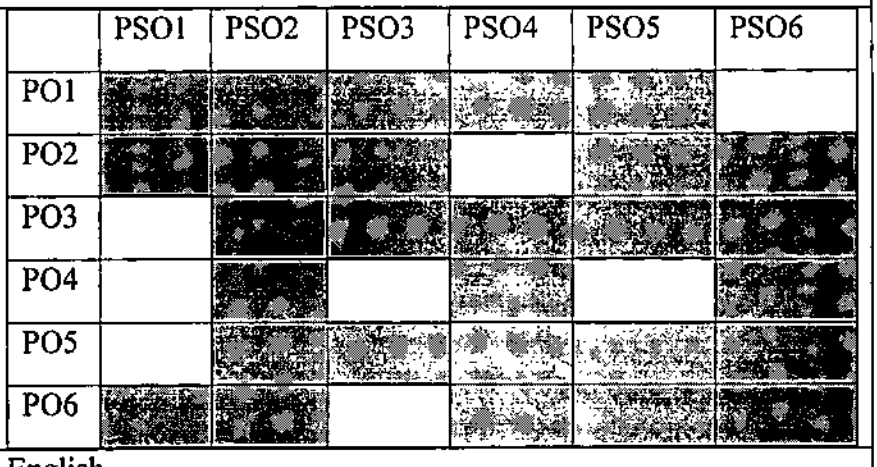
	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1						
CO2						
CO3						

	CO4 [redacted]
Pre-requisite	M.Sc. in Science discipline
Course Content	**Unit I** Advances in Taxonomy Taxonomy and its importance. Approaches in taxonomy: Embryological, anatomical, biochemical, ecological and ethological approaches. Molecular taxonomy and DNA Bar coding. **Unit II** Cryopreservation and hormonal biotechnology Cryopreservation of gametes and embryos. Role of Hormone in Aquaculture product enhancement and Induced breeding by hormonal manipulation **Unit III** Bioinformatics Definition, nature, concepts and scope of bioinformatics. Bioinformatics versus computational biology. Branches of bioinformatics. Computational phytogenetics- various approaches. **Unit IV** Population studies Principles of fish population dynamics: Recruitment, Growth, Mortality,Catch per unit effort. Population studies and stock assessments: Age-length and sex composition, Estimation of population size, marketing and tagging, Population dynamics, Population models.
Reference Books	1. Jhingran, V. G. (2007). Fish and Fisheries of India (3rd ed.). Hindustan Publishing Corporation. New Delhi. 2. Lakra, W. S. (2000). Fish Genetics and Biotechnology. CIFE, Mumbai. 3. Lakra, W. S., Abidi, S. A. H., Mukherjee, S. C. and Ayyappan, S. (2004). Fisheries Biotechnology. Narendra Publishing House. 4. Nagabhushanam, R., Diwan, A. D. and Gyananath, G. (2009). Biotechnology Fundamentals and Applications. Narendra Publishing House, Delhi, India. 5. Malvee, S. (2008). Fish Genetics, SBS Publishers, New Delhi. 6. Lesk, A. M. (2003). Introduction to Bioinformatics Oxford Uni. Press. 7. Claverie, M. and Notredame, C. (2003). Bioinformatics A Beginners Guide. Wiley India Private Limited. 8. Murthy, C.V.S. (2004). Bioinformatics. Himalaya Publishing House. 9. Rashidi, H. H. and Buehler, L. K. (2003). Bioinformatics Basics: Applications in Biological Sciences and Medicine.

	10. Srivastava, C.B.L. and Srivastava, S. (2006). A textbook of Fishery Science and Indian Fisheries. Kitab Mahal. 11. Jayakumar, N., Durairaja, R., Jawahar, P. and Felix, S. (2018). Fish Population Dynamics and Stock Management. Daya Publishing House. 12. Gupta, S. K. and Gupta, P. C. (2002). General and Applied Ichthyology (Fish and Fisheries). S. Chand and Company, New Delhi.
Teaching Methodology	Classwork, Discussion, Self-Study, ICT
Evaluation Method	50% Internal assessment based on class attendance, seminar, internal examination, etc. 50% External based on University examination

AQB Ph.D. Course work 1003

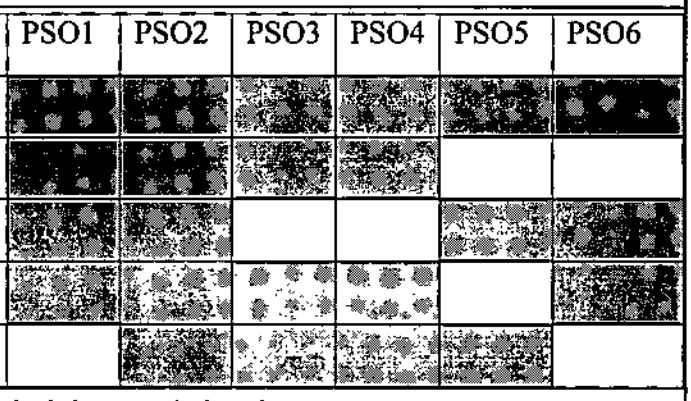
Name of Program	Ph.D. Course work
Abbreviation	AQB
Duration	12 weeks
Eligibility Criteria	A candidate who has been enrolled in Department Ph.D. Course
Objective of Program	The main objective of the course is to strengthen the students for research career in fishery resources management and sustainable utilization of aquatic resources by providing an outstanding environment of teaching and research in the specific aspects of the designed course. This structured course will facilitate students to enhance their research in fishery sector and help in the management of Aquatic pollution. Students will be acquainted with the use of instruments for their research and be capable of formulating research design.
Program Outcome	**PO1 : Basic Knowledge Enhancement** The designed course enhances students with the basic knowledge of the subject matter in order to capable students develop research skills which include laboratory techniques, aqua farm field techniques, disease management in aquaculture sector, feed technology, biochemistry, microbiological assessment, fish genetics, biotechnology and bioinformatics, aquarium setup, ornamental fisheries, marine and freshwater fisheries and Planktonology. **PO2 : Skill Development** The course develops the skills and techniques to use instruments to conduct their research work. **PO3 : Familiar with Advanced Emerging Technologies** The course trains students with the latest technologies that is being used in the aquaculture sectors and aquatic pollution management. **PO5 : Familiar with advances in fishery and analytical research** The course will make research scholar acquaint with advance technologies in fishery sector and their implementation in field. Healthy discussion in recent technology and pollution amendments and fisheries ttechnology enables acquaintances of the students with the practical aspects. Students will be capable of analyzing the field data's . **PO6 : Familiar with technical aspect**

	The designed syllabi enrich students with the technical aspects to identify aquatic problems in the natural environment and input the remedial measures.
Program Specific Outcomes	PSO1: Develop and strengthen the basic knowledge and concepts that are required to manage fishery resources. PSO2: Enhance the student capacity to formulate and develop research design. PSO3: Raising the students capable for handling instruments and use of latest technology to find remedial measures with respect to fisheries and pollution. PSO4: Develop students for self-learning and challenging situation in aquaculture sectors. PSO5: Enable students to use recent technologies for analyzing the research and practical concepts. PSO6: Development for incessant learning and research for successful academic and industrial career.
Mapping between POs and PSOs	
Medium of Instruction	English
Programme structure	12 weeks

Name of the Paper	Teaching schedule (hrs)	Exam Schedule				Total marks	Credit
		Internal exams		External exam			
		Mode of Evaluation	Marks	Mode of Evaluation	Marks		
AQB 1001: Research Methodology	45	i. Exams ii. Seminar	50	Exam conducted by	50	100	4

& Instrumentation				Uni.,			
AQB 1002: Advances in Fishery science	45	i. Exams ii. Seminar	50	Exam conducted by Uni.,	50	100	4
AQB 1003: Aquatic Pollution	45	i. Exams ii. Seminar	50	Exam conducted by Uni.,	50	100	4
Total			150		150	300	

Course Code	1003
Course Title	Aquatic Pollution
Credit	4
Teaching per Week	2 Hr
Minimum weeks per Semester	12
Effective From	June 2020
Purpose of Course	The purpose of the course is to develop concepts of water pollution and its impacts. Also to learn how to monitor pollution in aquatic resources.
Course Objective	To develop skill in students to identify pollution load, bioindicator in aquatic resource and how to conserve water. To acquire knowledge to monitor aquatic resources.
Course Outcomes	CO1 : To gain knowledge for collection of water sample and its analyses. CO2 : To know about the sources of water pollution in Aquatic ecosystem. CO3 : To acquire knowledge to monitor pollution load, control and prevention of pollution by various methods. CO4: To aware about impact of pollution on aquatic resources.

	CO5: To familiar with water conservation and recycling methods.
Mapping between COs with PSOs	
Pre-requisite	Basics of Biology and chemistry
Course Content	Unit I Physico-chemical and Bacteriological sampling and the preservation methodology. Identification of pollutants from different types of pollution sources and their analyses. Bio indicators and biodiversity indices for evaluation of Water Pollution (Nygaard's algal indices, Palmer's algal pollution indices, Species diversity indices and Sequential comparison index) Unit II Impact of pollution on Aquatic environments (Marine, Riverine and Lacustrine) Impact of pollution on the benthic system (Adsorption on sediments, bioavailability of toxic compounds.) Impact of pollution on flora and fauna of different types of water bodies (phyto and zooplankton, vascular plants, vertebrates and invertebrates) Impact of pollution on flora and fauna of sediments of different types water bodies. Specific phenomena related with water pollution (Algal bloom and Eutrophication, Biomagnifications/ Bioaccumulation, impact due to the ballasted water) Unit III Water borne diseases, decontamination methods, water

	legislations, standards and instructions. Unit IV Water and sewage purification, point source protection, water resourcing monitoring, water conservation and recycling.
Reference Books	• Agarwal, S.K. (2008). Water pollution, ABH publishing corporation, New Delhi • Albert, A. (1951). Selective toxicity, John Wiley and Sons, Chichester • Cremlyn, R. (1978). Pesticides, John Wiley and Sons, Chichester • Ghosh, G.K. (2002). Water of India, A.P.H. publishing corporation, New Delhi • Goel, P.K. (2006). Water pollution, New age international publishers, New Delhi. • Kukal S.S. and Dhaliwal, G.S. (2005). Essential of environmental science, Kalyani Publishers, Ludhiyana • Prabhakar, V.K. (2001). Marine ecology & pollution, Anmol publications New Delhi. • Rao, M.K. (2007). Environnemental pollution & Toxicology, Manglam publishers, Delhi. • Salpekar, A.C. (2008). Marine pollution, Jnanada Prackashan, New Delhi • Schmitz, R.J. (1995). Introduction to water pollution Biology, Gulf publishing company, Texas • Sinha, P.C. (1998). Marine pollution, Anmol Publications, New Delhi • Trivedi, R.K. and Goel, P.K.(1984). Chemical & Biological methods for water pollution studies, Environmental publications, Karad • Trivedi, R.K. (2001). Aquatic Pollution & Toxicology, ABD publishers, Jaipur.
Teaching Methodology	Classwork, Discussion, Self-Study, ICT
Evaluation Method	50% Internal assessment based on class attendance, seminar, internal examination, etc. 50% External based on University examination

	Selection- meaning and definition. Factor affecting Selection decision, Selection procedure. 4. **Career Planning & Training and Development (25%)** Concept career, career planning and succession planning, Career stages, Elements of career development programmes, Steps in Career development system, advantages, limitation of career planning& development, Meaning, importance, objective of training methods(on the job and off the job methods), Evaluation of training programmes, Induction training.
Reference books	1. Essentials of Human Resource Management and Industrial Relations P. Subba Rao (Himalaya Publishing House) 2. Human Resource & Personnel Management by K. Ashwathappa. 3. Human Resource Management by C.B. Gupta. 4. Human Resource Management by Dr. S.S. Khankha.
Teaching Methodology	Lecture method, discussion method, PPT presentation method
Evaluation Method	Internal and External Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Course: 1905000502050001: Law of Contract-II

Course Code	1905000502050001
Course Title	Law of Contract-II
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	This Course enables the students to better appreciate the law governing special contracts like, indemnity, guarantee, agency, etc. which are more relevant in the contemporary society. Law contained in several legislations apart from the Indian contract Act is taught in this course.
Course objective	Every man in his day to day life from dawn to dusk makes a variety of contracts. Man's contract making activities increase with the increasing trade, commerce and industry. In a way living in a modern society would be impossible if the law did not recognize this contract making power of a person. This prompted Roscoe Pound to make his celebrated observation: "Wealth, in a commercial age, is made up

<table>
<tr><td></td><td>largely of promises". In this sense India is also a "promissory" society. The conferment and protection by the law of this contract making power of persons gives them a considerable leeway to strike best bargain for the contract making persons. In a way they are permitted to regulate and define their relations in a best possible manner they chose. However, the contours of contractual relations in a feudal, colonial and capitalist society of pre-independence India cannot necessarily be the same in an independent and developing Indian society. Whatever may be the nature of a given society, the contractual relations, as are obtained in that society, are governed by certain principles which are more or less of a general and basic nature. In India these general principles are statuses in the form of the Indian Contract Act 1972. This course is designed to acquaint a student with the conceptual and operational parameters of these various general principles of contractual relations. Specific enforcement of contract is an important aspect of the law of contracts. Analysis of the kinds of contracts that can be specifically enforced and the methods of enforcement forms a significant segment of this study.</td></tr>
<tr><td>Course outcome</td><td>CO1 Identify the relevant legal issues that arise on a given set of facts in the area of contract law.
CO2 Select and apply a range of approaches to written communication, and apply the critical thinking required to bring about creative solutions to complex legal problems in the area of contract law.
CO3 Formulate oral and written arguments in response to a given set of facts.</td></tr>
<tr><td>Mapping between CO's with PSOs</td><td>
<table>
<tr><th></th><th>PSO1</th><th>PSO2</th><th>PSO3</th><th>PSO4</th><th>PSO5</th></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Course Content</td><td>1. Specific Contracts (Indian Contract Act
1.1 Indemnity- concept, need, definition, commencement, nature and extent of liability
1.2 Guarantee- concept, definition, essential elements, extent of liability, discharge- right and liabilities
1.3 Bailment- definition- essential elements, rights and duties, general lien
1.4 Pledge-definition- rights-who may pledge?
1.5 Agency- definition- essential elements- creation- relations, right-duties and liabilities-third parties termination
2. Sale of Goods
2.1 Essentials – implied terms
2.2 Rule of caveat Emptor-exceptions
2.3 Titles-transfer- delivery of goods-risk
2.4 Unpaid seller-rights
2.5 Remedies</td></tr>
</table>

<table>
<tr><td></td><td>

3. Partnership

3.1 Definition-advantages- disadvantages- nature, scope, Kinds

3.2 Mutual relationships-authority of partners-admission of partners-outgoing partners-rights and duties

3.3 Registration of partnership-effect of non-registration

3.4 Dissolution of partnership

3.5 Liability of partner under the Limited Liability partnership Act.

4. Negotiable Instruments

4.1 Kinds- essentials

4.2 Competent parties-liability discharge from liability

4.3 Dishonour-remedies

4.4 Holder and Holder in Due Course

4.5 Negotiable- presentation

</td></tr>
<tr><td>Reference books</td><td>

- Avtar Singh – **Contract Act,** Eastern
- **Principles of Law of Sale of Goods and Higher Purchase,** Eastern
- Krishnan Nair – **Law of Contract,** Orient
- G. Guest – Benjamin's Sale of Goods, Sweet and Maxwell
- Bhashyam and Adiga – **The Negotiable Instrument Act,** Bharath
- Beatson – **Anson's Law of Contract,** Oxford
- Saharay H. K. – **Indian Partnership and Sale of Goods Act,** Universal
- Ramanaiya – **The Sale of Goods Act,** Universal
- M. S. Parthasarthy – **Negotiable Instruments Act**
- Pollock and Mulla's – **Sale of Goods Act,** Lexis Nexis – Butterworths
- Pollock and Mulla's – **Indian Partnership Act,** Lexis Nexis – Butterworths
- P. C. Markanda's – **The Law of Partnership in India,** Lexis Nexis – Butterworths
- S. T. Desai's – **Law of Partnership in India,** Lexis Nexis – Butterworths

</td></tr>
<tr><td>Teaching Methodology</td><td>Lecture method, discussion method, PPT presentation method</td></tr>
<tr><td>Evaluation Method</td><td>

Internal and External Assessment

<table>
<tr><td>Internal Written Test (Compulsory)</td><td>15 Marks</td></tr>
<tr><td>Attendance</td><td>05 Marks</td></tr>
<tr><td>Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course</td><td>10 Marks</td></tr>
<tr><td>External University exams</td><td>70 marks</td></tr>
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	Total	100 marks

Course: 1905000502060001: Law of Constitution-II

Course Code	1905000502060001
Course Title	Law of Constitution-II
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	September 2013
Purpose of course	This Course is mostly focused on the learning outcomes: At the end of the course, students should be able to: To make students will develop and understand the skill of reading and interpreting the Constitution. To train students in understanding historical evolution of Constitutional doctrines. To make students analyze the various interpretation of Constitution by Judiciary.
Course objective	India is a democracy and her Constitution embodies the main principles of the democratic government- how it comes into being, what are its powers, functions, responsibilities and obligation show power is limited and distributed. Whatever might have been the original power base of the Constitution, today it seems to have acquired legitimacy as a highest norm of public law. A good understanding of the Constitution and the law, which has developed through constitutional amendments, judicial decisions, constitutional practice and conventions is, therefore, absolutely necessary for a student of law. He must also know the genesis, nature and special features and be aware of the social, political and economic influence on the Constitution. The purpose of teaching constitutional law is to highlight its never-ending growth. Constitutional interpretation is bound to be influenced by one's social, economic or political predilections. A student must, therefore, learn how various interpretations of the constitution are possible and why a significant interpretation was adopted in a particular situation. Such a critical approach is necessary requirement in the study of constitutional law. Judicial review is an important aspect of constitutional law. India is the only country where the judiciary has the power to review even constitutional amendments. The application of basic structure objective in the evaluation of executive actions is an interesting development of Indian constitutional law. Pari pasu the concept of secularism and federalism engraved in the constitution are, and are to be, interpreted progressively.
Course outcome	**CO1** To introduce students with the concepts of the Constitution by addressing the ideological framework relied upon by the framers of the Constitution of India, the system of government and role of judiciary

<table>
<tr><td></td><td>by discussing and analysing the rights and duties specified under the Constitution of India
CO2 To understand the structure of executive, legislature and judiciary
CO3 To understand the central and state relations, financial and administrative
CO4 To realize the status and importance of fundamental rights, fundamental duties and directive principles of state policy and relation among them by understanding the articulation of its basic values under the Constitution of India;
C05 Comprehend the basic feature of the Constitution of India and the importance of the role of judiciary in ensuring checks and balances
C06 Understand the meaning, nature and concept of federalism, its essential features and be able to familiarize with the Indian federal structure and its status quo in the contemporary era.</td></tr>
<tr><td>Mapping between CO's with PSOs</td><td>
<table>
<tr><th></th><th>PSO1</th><th>PSO2</th><th>PSO3</th><th>PSO4</th><th>PSO5</th></tr>
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<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO5</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO6</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Course Content</td><td>Module: 1: Nature of Federalism in India (18): Essential Character of Indian Federalism, Indian Federalism Distinguished from US Federalism, Is Federalism a basic structure- is Center- State relation within the constitutional Framework is the basic structure, Framework of center- State relation Within the Contour of Articles 245 & 246- Separation of Power and Doctrine of Pith and substance, power of Delegation, Center- State Council.[keshavananda Bharati v State of Kerala, AIR 1973 SC 1461; Indira Gandhi Nehru v. Raj Narani AIR 1975 SC 2299; State of Bihar v. Bal Mukund Sah AIR 2000 SC 1296; Valsamma Paul v. Cochin University]
Module 2: The president of India and the Character of the republic (6): Presidential via-a- Vis parliamentary from of Governance- manner in Which executive power is to be vested and exercised, Election of President and Vice President, term of office, qualification and eligibility, Impeachment, Oath of office, Power of the President to be exercised, power to grant pardon, Conduct of Business of the Government of India, Office of Vice President- election procedure, power and fictions
[Rao v. Indira AIR 1971 SC 1002; Ram Jawaya v. State of Punjab, AIR 1955 SC 549; State of Panjab v. Joginder Sing AIR 1990 SC 1396; Keher Singh v. Union of India AIR 1989 SC 653, Garg v. Union of India AIR 1981 SC 2138, T. Venkata Reddy v. State of Andhra Pradesh Air 1985 SC 551]</td></tr>
</table>

	Module 3: Union Cabinet (4): Constitutional provision on formation of Council of Ministers- advisory faction, Collective responsibility- Confidentiality of Cabinet Decision – Other provision – Duties of PM [Samsher v. State of Punjab AIR 1974 SC 2192;S.P. Gupta v. Union of India AIR 1982 SC 149; K.M. Sharma v. Devi Lal AIR 1990 SC 528; State of Karnataka v. Union of India AIR 1978 SC 68] **Module 4**: The Parliament(4): Bicameral Character and constitution, Composition of the House of State and House of the People, Duration, Qualification and disqualification of members, Office of Profit, session, Right of President to address, Special address, Officers of the parliament and their duties, vacation including removal of, Conduct of Business, principle debarring holders of power, privileges and Immunities of Parliament and its Members office of profit, Salaries and allowances of members, Special procedure on Money Bill and Financial matters [Rao v. Indira, AIR 1971 SC 1002, Indira v Rajnarayan AIR 1975 SC 2299 Pashupati v Nem AIR 1984 SC 399, Dilip v State of MP AIR 1976 SC 133, Bhagwati v. Rajeev AIR 1986 SC 1534, Union v. Gopal AIR 1978 SC 694, Kiran v Sanjiva, AIR 1970 SC 1573,] **Module 5**: Union Judiciary(3): nature of Indian Judicial System with its distinctive feature, supreme Court of India, its various powers, Judicial Appointment, Special leave appeals, Officers of SCI [In Re Presidential Reference AIR 1999 SC 1, S.P Gupta v Union AIR 1982 AIR SC 149, Pedda Narayana v UP AIR1975 SC 1252, Rajan v. State of Bihar AIR 1991 SC 1377, Mahesh v. State of Delhi AIR 1991 SC 1108. Balakrishna v Matha (1991)2 SCC 203, J. Ranga Swamy v AP AIR 1990 SC 535 **Module 6**: State Executive(3): Governor of a state, Qualification, Appointment, term, Executive & legislative power and fucation; Council of Ministers [State of Punjab v. Joginder AIR 1990 SC 1396, Satpal v. State of Hariyana AIR 2000 SC 1702, Bharat Coal v State of Bihar (1990) 4 SCC 557, Pratap Singh Rane v Government of Goa AIR 1999 Bom 53 Rai Sahib Ram Jawaya Kapurv State of Punjab (1955) 2 SCR 225, A Sanjeeva naidu v State of Madras AIR 1979 SC 1102 **Module 7**: State Legislature (2): Constitution under Unicameral and Bicameral Legislative System, qualification of members, session officers of legislature, power and fucation, Conduct of business, disqualification, Special Procedure on money Bill & Financial matters, [Sushil Kumarv Rakesh Kumar AIR 2001 SC 230, S> R> bommai v Union AIR 1994 SC 1918 Election Commission v Subramanium Swamy AIR 1996 SC 810 Purushotham v State of Kerala, AIR 1962 SC 694. Bharat Seva Asharam V State Of Gujarat AIR 1987 SC 494, State Of Bihar v Kameswar Singh AIR 1952 SC 252 **Module 8**: High Courts & Subordinate Courts (2):Judicial system in the States, Appointment and Conditions of Office, Various Powers,

	Establishment of Common High Court, Constitution Of Bench, Transfer of a Judge, [Ashis Handa v Chife Justice, P& H High Court. AIR 1996 SC 1308, K Asoka Reddy v Government of India AIR 1994 SC 1207, Sodhi v union of India (1331) 2 SCC 382, A.K. Roy v Union of India AIR 1982 SC 710, Kanu Sanyal v District Magistrate AIR 1973 SC 2684, S.P Gupta v Union of India AIR 1982 SC 149, Fertilizer Corporation v Union of India AIR 1981 SC 344] **Module 9**: Macro Economic Management under the Constitution of india (10): Fiscal responsibility, Taxation planning and management, financial accountability, state actor in business, trade and industry, state as a party in a contract, revenue distribution, Borrowing (Article 263-300) [CIT v. Shelly Products AIR 2003 SC 2535: New India Industries v Union AIR 1990 Bom 239 Secretary, Govt. of Madras v Sriramulu AIR 1996 SC676, Goodyear India v. State of Haryana. AIR 1990 SC781, Union v. State of Punjab AIR 1990 P&H 183, Associated Cement v C.S.T AIR 1991 SC 1122] **Module 10**: Emergency power (4): Proclamation, effect, grounds, failure of constitutional breakdown [State of Rajasthan v Union AIR 1977 SC 1361. A.N Ray v Union of India AIR 1982 SC 710, S.R. Bommai V Union of India AIR 1994 SC 1918] **Module 11**: Amendment (2): Comparison constitutional position from US, France and Indian position, When can some provision not amendable- basic structure philosophy and the strength and weakness of the argument. [Indira Gandhi v Raj Narayan AIR 1975 SC 2299, Keshavananda Bharti v State of Kerala, AIR 1973 SC 1461, Sampath Kumar v Union AIR 1987 SC 386, Waman Rao v Union AIR 1981 SC 271, Bhim Singh v Union AIR 1981 SC234] **Module 12**: Local Self Government (4): Structures and bodies, power and functions composition, [B.Krishnaiah v State Election Commission. A.P. AIR 1996 SC 1595] **Module 13**: Constitutional Institutions (6): Election Commission, Finance Commission, Comptroller and Auditor General, Attorney General of India, Public Service Commission, National Commission for SC and ST, Inter-State River Dispute Resolution Tribunals, Central and State Service Tribunals, [K. Vasudavan Nair v. Union Air 1990 SC 2295, T.N.Cauvery Sangam v. Union AIR 1990 SC 1316, Comptroller & Auditor General of India v. Mohan AIR 1991 SC 2788, Om Prakash v. State of UP AIR 1991 SC 425, Ram E. Sharma v. State of Bihar AIR 1990 SC 1368, Jai Sankar Prasad v. state of Bihar AIR 1993 SC 1906, Sampath Kumar v union AIR 1987 SC 386, KMI v Pandurang AIR 1993 SC 1993 SC 392, Dhanoa v. Union AIR 1991 SC 1745]

Reference books	– P.M. Bakshi, constitution of India, Universal – M.P. Jain Indian Constitutional Law, Wadhwa – Granville Austin The Constitution of India, Oxford – Basu Constitutional Law of India, Prentice Hall of India
Teaching Methodology	The Lecture method as it is one of the most important ways of teaching through which a teacher develops an understanding of the subject to its core by explaining a concept through examples, thereby making it a student centric approach. The Socratic method of teaching which gives an opportunity to the students to ask questions to the teachers would be emphasized by the teachers. Similarly, a variety of approaches has been adopted to achieve the objectives of the programme with the use of audio-visual aids, charts, projectors, power point presentations, LCD projectors and all other tools to disseminate knowledge to the students.
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Semester 3								
Course Code	Title	Teaching per week		Course Credit	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
1905000503010001	Fundamentals of Entrepreneurship - I	6	0	6	3hrs	70	30	100
1905000503020001	Principles of Business Management - I	6	0	6	3hrs	70	30	100
1905000503030001	Legal English	6	0	6	3hrs	70	30	100
1905000503040001	Law of Torts	6	0	6	3hrs	70	30	100
1905000503050001	Law of Crimes-I	6	0	6	3hrs	70	30	100

Course: 1905000503010001: Fundamentals of Entrepreneurship - I

Course Code	1905000503010001

Course Title	Fundamentals of Entrepreneurship – I
Credit	6
Teaching per week	6 hrs.
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	To understand the fundamentals of Entrepreneurship.
Course objective	Understanding basic concepts in the area of entrepreneurship, understanding the stages of the entrepreneurial process, adopting of the key steps in the elaboration of business ideas, developing personal creativity and entrepreneurial initiative.
Course outcome	**CO1** To identify the concept of entrepreneurship, its emergence and its need for society. **CO2** To generate a business idea and diagnose for a new business opportunity. **CO3** To identify different institutional support available to the entrepreneur **CO4** Identify the elements of success of entrepreneurial ventures, explain entrepreneurial project and its essential elements, consider the legal and financial conditions as well as the importance of the entrepreneurial infrastructure for starting a business venture. **CO5** Evaluate the effectiveness of different entrepreneurial strategies
Mapping between CO's with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					
CO4					
CO5					

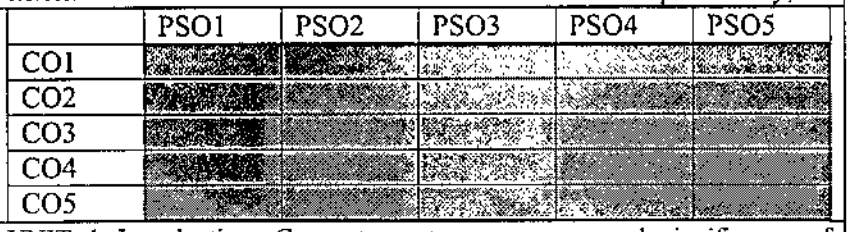
Course Content	**Unit I.** Introduction : The entrepreneur; Definition; Emergence of entrepreneurial class; Factors into making of an entrepreneur, characteristics of an entrepreneur in small scale & largescale enterprise, Theories of entrepreneurship; Role of socio-economic environment ;Characteristics of entrepreneur ; entrepreneur functions ,Stages of entrepreneur Development ; Leadership ;Risk taking; Decision-making and business planning. **(35%)** **Unit II.** Promotion of a Venture; Opportunity analysis; External environmental analysis-economic, social, and technological; Competitive factors; Legal requirements for establishment of a new unit and raising of funds; Venture capital sources and documentation required , Venture Capital companies in India.**(30%)** **Unit III.** Entrepreneurial Behavior: Innovation and entrepreneur, Stages in Innovation process, elements in the Invention- Innovation Process, Left v/s Right hemisphere of the brain, people in technological innovation, windows & Corridors of opportunity, success mantras for entrepreneur, Mavericks & misfits about entrepreneurship, Entrepreneurial behavior and psycho Theories, Social

	responsibility.(35%)
Reference books	1 Tandon B.C: Environment and Entrepreneur; Chugh Publication, Allahabad. 2 Siner A David: Entrepreneurial Megabuks ; Johan Wiley and Sons, New York. 3 Srivastava S.B : A Practical Guide to Industrial Entrepreneurs ; Sultan Chand and Sons, New Delhi 4 Prasanna Chandra: Project Preparation, Appraisal, Implementation; Tata McGraw Hill, New Delhi. 5 Pandey I.M.Venture Capital – The Indian Experience; Prentice Hall Of India. 6 Holl: Entrepreneurship –New Venture Creation; Prentice Hall of India.
Teaching Methodology	Lecture method, discussion method ,PPT presentation
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total marks	100 marks

Course: 1905000503020001: Principles of Business Management - I

Course Code	1905000503020001
Course Title	Principles of Business Management – I
Credit	6
Teaching per week	6 hrs.
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	To acquaint the students with the basic principles of Management
Course objective	Gain practical skills and personal attributes and competencies that is required for managerial position. Describe the four management functions of planning, organizing, leading, and controlling. Outline the historical evolution of management theories. Explain how decisions are made within an organization and how those decisions are communicated to the various stakeholders
Course outcome	**CO1** Evaluate the global context for taking managerial actions of planning, organizing and controlling. **CO2** Assess global situation, including opportunities and threats that will impact management of an organization.

	Integrate management principles into management practices. **CO3** Assess managerial practices and choices relative to ethical principles and standards. **CO4** Specify how the managerial tasks of planning, organizing, and controlling can be executed in a variety of circumstances. **CO5** Describe the effective management skills needed to maximize individual and organizational productivity related to the internal and external environment and issues of ethics and social responsibility;
Mapping between CO's with PSOs	
Course Content	UNIT 1 Introduction: Concept , nature , process and significance of management, Four orientations of mgmt. ,effective mgmt. ,Managerial roles (Mintzberg);An overview of functional areas of management; Development of management thought ; Classical and neo-classical systems; Contingency approaches. **(20%)** UNIT II Planning: Concept, process and types, Decision making – Concept and process; Bounded rationality; Management by objectives; corporate planning; Environment analysis and diagnosis; Environmental factors; Strategy formulation.**(30%)** UNIT III: Organizing: Concept, nature, process and significance; Authority and Responsibility relationships; Centralization and decentralization; Departmentation; Organization structure-forms and contingency factors. **(20%)** UNIT IV: Motivating and Leading People at Work; Motivation-Concept; Theories: Maslow, Herzberg, McGregor and Ouchi; McClellands need theory, Alderfer ERG's Theory, Financial and non-financial incentives.**(30%)**
Reference books	– Drucker Peter F: Management Challenges for the 21st Century; Butterworth Heinemann, Oxford. – Weihrich and Koontz, et al: Essentials of Management; Tata McGraw Hill, New Delhi. – Fred Luthans : Organizational Behavior ; McGraw Hill, New York. – Louis A. Allen: Management and Organization; McGraw Hill, Tokyo. – Ansoff H I : Corporate Strategy ; McGraw Hill, New York. – Hampton, David R: Modern Management; McGraw Hill, New York. – Stoner and Freeman: Management; Prentice-Hall, New York. – Principles and Practices of Management - L. M. Prasad.
Teaching Methodology	Lecture method, discussion method ,PPT presentation
Evaluation Method	Internal Assessment Internal Written Test (Compulsory) — 15 Marks

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					
CO4					
CO5					

	Attendance	05 Marks
	Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
	External University exams	70 marks
	Total	100 marks

Course: 1905000503030001: Legal English

Course Code	1905000503030001
Course Title	Legal English
Credit	6
Teaching per week	6 hrs.
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2017-2018
Purpose of course	To acquaint the student with the Legal English language. To understand the different terms, maxims useful for law graduate.
Course objective	• To understand, identify, develop and practice essential English-speaking skills during their legal studies and in their everyday life. • To appreciate the constituents of good oral and written language. • To develop techniques to communicate effectively. To inculcate amongst student's courtroom language.
Course outcome	**CO1** This course legal English to scientifically relate the means and methods of effective communication, reading writing and speaking. **CO2** To acquire & apply legal knowledge to the Legal term and Legal maxim **CO3** To possess professional skills required for legal practice such as Argument, Pleading, drafting, conveyancing etc. **CO4** Essays written by eminent writers on law gives various dimensions on the legal professions and learning the law **CO5** Précis writing/drafting reports etc. the interpretation skills and effective understating of judgements, law texts, etc. **CO6** Need for professional ethics -7lamps of advocacy –importance of ethics morality in the practice of law. **CO7** Duties and responsibilities towards court, client, general public, society and nation. **CO8** Contempt of court by the lawyers and consequences.
Mapping between CO's with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					

	CO3	
	CO4	
	CO5	
	CO6	
	CO7	
	CO8	
Course Content	**UNIT I** **Grammar and usage:** 1. Tenses 2. Basic transformations: i) Passives ii) Negatives iii) Questions, 2) Complex and compound sentences 3. Reported speech, Questions tags **UNIT II** **Introduction to legal terms** Proper understanding of some legal terms frequently used in legal writing **UNIT III** **Legal maxims** **UNIT IV** • **Composition:** Essay writing on topics of interest to the legal profession • **Comprehension:** Answering comprehension question on non-legal passages with emphasis on identifying logical fallacies and persuasive devices/the non-legal passages should be narrative, descriptive, and expository and argumentative/the legal passages should be drawn from notices, plaints, petitions, court orders, suits etc. • **Précis writing** • **Basic concept of Abstract writing** **UNIT V** **Meaning of Bar and Bench** • Relation between bench and bar • Who is a Lawyer and what he does • Meaning of (a) Barrister / Attorney / Advocate (b) Solicitor / Notary / Legal Adviser, Legal Consultant **UNIT VI** **Advocacy skills** • 7 lamps of Advocacy • Duty of advocate towards (a) The Court (b) Client (c) Himself • Contempt of court by lawyers	
Reference books	---	

Teaching Methodology	Lecture method, Discussion method, Through power point, Through Book, Journals, Bare Act etc., Group discussion methods, Assignment method
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Course: 1905000503040001: Law of Torts

Course Code	1905000503040001
Course Title	Law of Torts
Credit	6
Teaching per week	6 hrs.
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	September 2013
Purpose of course	To acquaint the students with the duties one owes towards other.
Course objective	Independent of criminal or contract law, Tort law provides individuals and groups with redress for injury to every dimension of life from physical injury, to property damage, to personal insult. Over past decades no area of law within the civil justice system has experienced greater ferment than the law of Tort and this has resulted in vital changes the thinking of the tortuous liability. The object of the course is to familiarize the students with the nature and extent of liability of the private enterprises, multinationals and the government authorities for the wrongs committed against the individual and their property, and to develop sound knowledge, skills and disposition amongst students of B.Com LL.B on some of the contemporary issues of Specific Torts, Cyber Tort, Family Tort, and Economic Tort, Product Liability etc.
Course outcome	**CO1** This course provides a general introduction to different types of Tortious acts like trespass to the person, nuisance, trespass to land, trespass to goods, and defamation with a particular focus on negligence, encompassing duty of care; breach and standard of care; causation and remoteness; damages; defenses; and vicarious liability. **CO2** The inter-connection between the Civil Liability and common law is considered in assessing the different stages of a negligence

	analysis with representative range of other torts with exploration of different remedies and defenses.
Mapping between CO's with PSOs	<table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td></tr><tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td></tr></table>
Course Content	**Module 1:- Definition and Nature of the Law of Tort** Definition, nature and history of the law of torts. "Law of Tort" or "Law of Torts." Difference between Tort & Crime, Tort & Contract. Basis of the tortuous liability; Basic legal maxims for Determination of liability; viz *Ubi jus Ibi remedium, Injuria Sine Damnum and Damnum Sine Injuria.* *[Cases: Ashby v. White (1703)2 LR 938; Rudal Shah v. State of Bihar, AIR 1983 SC 1086Saheli v. Commissioner of Police, Delhi AIR 1990 SC 513; Gloucester Grammer School case (14190 V.B. Hill 11.; Mayor of Broadford Corporation v. Pickles (1895) AC 587;Bhim Singh v. State of Jammu & Kashmir AIR 1986 SC 494;Usha Ben v. Bhagya Laxmi Chitra Mandir, AIR 1978 Guj.]* **Module 2: - Liability for the Wrong Committed by Other Person** **A.** Principle of Vicarious Liability and its basis. • Master and Servants, • Principle and Agent • Partners of a firm **B.** State's Liability: Doctrine of Sovereign Immunity in reference to the Crown Proceedings Act 1947, Federal Torts Claims Act 1946 and Article 300 of the Indian Constitution. **C.** Joint Tort Feasors, joint and several liabilities in payment of damages. *[Cases: Lucknow Development Authority v M.K. Gupta AIR 1994 1 SC 243; State of Rajasthanv. Vidyawati Devi AIR 1962 SC 933;Donoghue v. Stevenson, 1932,AC 562;Kasturi Lal v. State of U.P. AIR 1965 SC 1039;Nicholes v. Marshland (1876)2 Ex.D. 1;Smith v. London and South Western Railway Co. (1870) LR 6;Peninsular and Steam Navigation Co. Secretary of State for India (1861) 5 Bom. H.C.R. App. 2; Loyd v. Grame Smith &Co. (1912) AC 716]* **Module 3:- Negligence, Contributory Negligence and Nuisance** Negligence as a tort and its various dimensions in the present world viz. Professional Negligence, psychiatric damage; economic loss; Foresight of harm as test of the existence of negligence, Proximate Cause and Intervening cause, concurring negligence of the third person Contributory Negligence, Last Opportunity Rule, Res Ipsa Loquitur Injury Caused by Plaintiff's negligence, Injury Caused by Defendant's negligence, Concurring Contributory negligence, Representation in

	Contributory Negligence and Imputed Negligence. History of Nuisance, Nuisance and interference with real rights, Remedy for Nuisance, Nuisance in conduct of Business, Public Nuisance. *[Cases:Jay Laxmi Salt Works (P) Ltd. V. State of Gujarat 1994(4) SCC 1;Dr.Laxman V.Dr. Trimbak AIR 1969 SC 128; Davis v. Redcliffe, (1990)2 AER 536;F V. Birkshire Health Authority (1989) 2 All ER 545 (HL); Maynard V. Midlands Health Authority (1985) 1 All ER 635 (HL);Achutrao Haribhau Khodwa V. State of Maharashtra AIR 1996 SC 2377 ;M.P. State Road Transport Corp. v. Basanti bai (1971) MPLJ 706 (DB);Indian Air Lines v. Madhuri Chaudhri AIR 1964 Cal. 252; Glasgow Corporation v. Muir (1943) AC 448;Municipal Corporation of Delhi v. Subhagwati AIR 1966 SC 1750; Ratlam Municipality v. Vardhichand (1980) 4SCC 162]* **Module 4: - General Defences for the Tortuous Liability** • *Volenti non fit injuria* • *Vis Major (Act of God)* • Inevitable Accident • Necessity • Statutory Authority, Judicial and Quasi-Judicial, Parental and Quasi- Parental Authorities. • Act of Third Parties • Plaintiff's Default • Mistake *[Cases; Hall v. Brookaland Auto Racing Club ; Smith v. Backer (1981) AC 325; Stanley v.Powell (1891)11 Q.B. 86; Heynes v. Harwood (1935) 1 KB 146]* **Module 5:- Torts against Human Being and Property** Assault, Battery, Emotional Distress, Malicious Prosecution and abuse of legal proceedings, Conspiracy, False Imprisonment Defamation: Freedom of Speech and Expression and liability for Defamation in the civil and criminal law, different branches of Defamation: Libel, Slander and hybrid types of the Defamation; Defamation in Blogs & Cyberage; Privilege, fair Comment and Criticism, malice and right of privacy. Trespass to land, trespass to goods, conversion, Passing off, Injury to trademark, patent & copyrights. *[Cases:Leta Fay Ford V. Revlon, Inc. Supreme Court of Arizona (153 Ariz. 38, 734 P.2d580) 1987; Noor Mohd. v, Mohd Jiauddin AIR 1992 MP 244; Hayward v. Thompson (1981)3All E R 450; M.C. Verhese v. T.J. Poonam, AIR 1970 SC1876; T.S. Bhatt v. A. K. Bhatt AIR 1978 Ker 111; Girija Prasad Sharma v. Uma Shankar Pathak AIR 1973 MP 79;Quinn v. Leathem,(1901)AC 495; Municipal Board of Kanauj v. Mohanlal AIR 1951 All 867 State v. Gangadhar AIR 1967 Raj 199; Rajalingam v. Lingaiah (1964) 1ALT 391; Sobha Ram v. Tika*

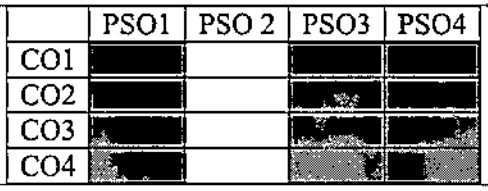
	Ram(1936) ILR 58 All 903] **Module 6: - Liabilities based on fault:** **No fault Liability, Strict Liability and Absolute Liability** The central idea in tort law is that liability is based not so much on acting badly or *wrongfully*, but on committing a *wrong*. At the same time, a victim's claim to recover for harm to her depends on the wrong the injurer has committed being a wrong *to her*. It is not enough that the injurer has committed a wrong and that she (the victim) has suffered as a consequence. The defendant's liability to the victim and the victim's claim against the defendant depend on the defendants having breached a duty of care to the victim. Principle of Strict Liability as laid down by Justice Blackburn in the famous case of Reyland's Fletcher and the exceptions thereof. The application of this doctrine in the India and the changes occurred after the M.C. Mehta's case (The Principle of Absolute Liability). *[Cases: Reyland v. Fletcher (1868) L.R. 3 H.L. 30; M.C. Mehta v.Union of India (1987)1SCC395]* **Module 7: - Remoteness of Damage** Various principles for fixing the liability and to ascertain the damages for the wrong committed *viz* "But for Test", "Directness Test" (*In Re Polemise Case*) and the "Doctrine of Reasonableforesight" (*The Wagon Mound Case*). *[Cases: In Re Polemise Case (1921)3 KB 560 CA; Wagaon Mound Case (1961)AC 388Leisbosch Dredger v. Edison, (1933) AC 449 HL.]* **Module 8: Emerging areas of Tort: Cyber Tort** Emerging Trends in the law of tort for example, wrongs relating to Domestic Rights, viz marital rights, parental rights, domestic violence, seduction of female child etc Rights in Cyberspace, Cybertrespass, Cyberstalking, Spamming, Invasion of Privacy in Cyberspace, Cyberlibel, Cybersquating, .Product liability in a hi-tech environment Jurisdiction in Cybertort ***Communication Decency Act 1996 USA*** ***Electronic Communication and Privacy Act 1986 USA*** ***USAPA 2001(United States Patriot Act)*** ***Information Technology Act 2000 (India)*** ***Nano-technology and Liability Issues*** *[Cases: Barrett v. Fonorow, 799 N.E.2d 916 (Ill. App. 2003).Barrett v. Rosnethal, 112 Cal.App. 4th 749 (2003).Bill Mc Laren, Jr. V.*

	Microsoft Corporation, Courtof Appeals of Texas, *Dallas (1999) WL 339015.; CompuServe Inc. v. Cyber Promotions, Inc., 962 F.Supp 1015 (SD Ohio 1997).Doe v. AOL, Inc., 783 So. 2d 1010 (Fl 2001).EBAY, Inc., Plaintiff, V. BIDDER'S EDGE, Inc., Defendant. United States District Court for the Northern District of California . 100 F.Supp. 2d 1058(2000). Hotmail Corp. v. Van$ Money Pie Inc., WL 388389 (1998).Kremen v. Cohen, 337 F.3d 1024 (9th Cir 2003).School of Visual Arts v. Kuprewicz, 771 N.Y.S.2d 804 (2003).United States of America V. Hambrick U.S District Court, W.D.Virginia 55F. Supp. 2d 504, (1999)* **Module 9: Statutory Tort** Motor Vehicles Act,1988 a) Chapter-X Liability without Fault (Ss.140-144) b) Chapter-XI Insurance of Motor Vehicles (Ss.145-164) c) Chapter- XII Claims Tribunal (Ss. 165-173) **Module 10 Product Liability and Protection of Consumers' Interest:** Product Liability – theories of causation, defectiveness and proximate reason, tortuous misrepresentation and negligence, The Consumers' Protection Act and its applications.
Reference books	1. Wienfield and Zolowicz, Torts, 17th Edi., Sweet & Maxwell 2006 2. Salmond, J W, Salmond's Law of Torts (8th edition, Sweet & Maxwell, London, 1934) Fleming, J G, The Law of Torts (9th edition, LBC Information Services, Sydney, 1998) Ratan Lal and Dhiraj Lal on Law of Torts, 3. A Lakshminath M Sridhar, Ramaswamy Iyer's, The Law of Torts, Lexis Nexis, Tenth Edi 2007 Tony Weir, An Introduction to Tort Law, 2nd Edi Oxford University Press 2006. 4. John Murphy, Street on Torts ,Eleventh Edi Oxford University Press 2006. 5. Tabrez Ahmad "Cyberlaw, E-Commerce & M-Commerce". APH Pub.Corp. NewDelhi 2003. Lee B. Burgunder, Legal Aspects of Managing Technology 2nd Edition West 2001. Ramaswamy Iyer Law of Tort 6. Bangia's Law of Torts 7. Madden & Owen, On Product Liability, West Group
Teaching Methodology	Lecture method, discussion method ,PPT presentation
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks

	Total	100 marks

Course: 1905000503050001: Law of Crimes-1

Course Code	1905000503050001
Course Title	Law of Crime – I
Credit	6
Teaching per week	6
Minimum weeks per semester	18
Effective from	2013-2014
Purpose of course	This course is designed with a prime object to familiarize students with the principles of criminal liability and other concepts of substantive criminal law.
Course objective	• To examine the historical evolution of criminal law maxims, doctrines, and principles. • To analyze the sentencing policy of the penal law of the land. • To articulate the differences between Indian Law on one hand which is codified and non-codified British law? • To articulate informed opinion over important, controversial issues in criminal law. • To recognize important considerations dealing with the rights of criminal defendants.
Course outcome	**CO1:** To explain the general principles of criminal law specifically those relating to criminal conduct, culpability and defences, from the perspective of a range of legal systems and traditions. **CO2:** Critically evaluate relevant criminal law doctrines, informed by developments at the forefront of legal research. **CO3:** Apply the relevant principles to particular areas of the criminal law, and to problematic cases. **CO4:** Critically evaluate proposals for development of the criminal law.
Mapping between CO's with PSOs	
Course Content	PART ONE General Principles of Penal Law have been divided in the following 8 modules:- **Module I.** Historical Development of Penal Law in India (i) Early Hindu law (ii) Muslim Law Historical background to Indian Penal Law: Why penal code? First law commission and the role of Lord Macaulay. Benthamite ideas and their

	influence. Napoleonic code and its influence. Advantages and disadvantages of codification. Characteristics of the Indian Penal code. Need for revision as seen by Macaulay. Interpretation of codified penal law. **References:** Read*Criminal Law Forum*(Patric Fitzerald, Codes and Codification: interpretation, Structure and Arrangement of Codes And Martin L.Friedland's Codification in the Common Wealth: Earlier Efforts); *Rankin: Background to Indian Law* (Chapter IX, Codification or development, p.135); *Cowell: Court and Legislative Authorities* (lecture VIII, p.127); *Stephen: History of English Law Vol. III* (Last chapter on Indian Penal Code); *W.H.Morley: Administration of Justice in British India*; *Setelvad: Common Law in India*(ChapterIII, Criminal Law, p. 124-176); *J.D. Mayne: Indian Penal Code* (Ed. II 1901,p.242-249); *Dharkar: Lord Macaulay legislative minutes* (p. 59, 66, 137,140,214,239); *Tapas Kumar Banerjee: Background to Indian Criminal Law.* Crime – Nature and definition social & legal context – a. Crime and sin b. Criminal law and morality c. Law & Ethics d. Crime and Offence Why do we criminalize an act or omission? Beccarria and Bentham. Hart H.L.A and modern views. Outline of the Aims and Functions of the Criminal law. **Read;** Text Book of Criminal Law: Glanville Williams (Universal Law Publishing Co.; p. 3-36). J W Cecil Turner: Kenny's Outlines of Criminal Law (Universal Law Publishing Co. Ltd.; p. 1-5). **Module II.** Essentials of offences A. Human being B. Guilty intention C. Prohibited act D. Harm/ Punishment Stages of an offence A. Intention E. Preparation F. Attempt G. Commission of offence **Read;** TextBook on Criminal Law: Michael J. Allen (chapter 2 & 3-p. 17- 80);Book of Criminal Law: Glanville Williams (Universal Law Publishing Co.; p. 70-84). Criminal Law: Smith and Hogan (Oxford

	University Press; p. 42-123). Mike Molan: Cases and Materials onCriminal Law (Routledge Cavendish; p. 54-132). General Principles of Criminal Law: Jerome Hall (The Bobbs-Merrin Comp. New York, p. 70-93). **Module III.**A. Principles of Penal Law NILLA POENA SINE LEGE NULLUM CRIMEN SINE LEGE Retroactivity of criminal law, Narrow construction of criminal law, rule against judicial creation of offences and vagueness of criminal statutes. Read Two rules of Legality in Criminal Law: Peter K. Weston (Journal of Law and Philosophy Vol. 26 May 2007 University of Michigan, p.229-305). General Principles of Criminal Law: Jerome Hall (The Bobbs-Merrin Comp. New York, p. 27-64). B. MENS REA AND Actus Reus Meaning origin & development Means rea & Intention, Motive Knowledge, intention recklessness and Negligence C. Mens rea and Criminal liability General Principles of liability Principles of mela in se, mela prohibita Joint liability Vicarious liability Strict liability Absolute liability Means rea and (1) Socio-welfare offences (2) Socio-Economic offences **References:** Read Criminal Law Cases and Materials: K D Gaur (Butterworths; p. 207-229).The Indian Penal Code: Ratanlal & Dhirajlal (Wadhwa & Company Nagpur; p. 32-56). **We will discuss** *State of Maharastra vs Mayor Hans George AIR 1965 SC 722,SrinivasmalBarolia vs. Emperor AIR 1947 PC, Nathulal vs State of M.P. AIR 1966 SC 43, Commissioner of Income Tax, Patiala vs. Patram DasAIR 1982 P & H 1, DPP vs Colloins (2006) AER 602 (HL).* *Barendra Kumar Ghosh v. Emperor, (1924) 52 IA 40, Cal. (PC), Mehboob Shah v. Emperor, (1945), 47 Com LR 941(PC), Mukund Murari Pal v. Emperor, Nitya sen v. State of West Bengal, 1978 Cr LJ 481, Vasudevan v. State of Kerala, (1994) 2 Cr LJ 1522, J.M. Desai v. State of Maharastra, AIR 1960 SC 889, Srikantia v. State of Bombay, K.C. Mathew v. State of Travancore, Allauddin v. State, Kabil Cazee v. State; Abdul Waheed Khan v. State of Andhra Pradesh (2002)7SCC*

	175; Idrish Bhai Daud Bhai v. State of Gujrat (2005)3 SCC 277; Vijayanti v. State of Maharastra (2005)13 SCC **Module IV.** Inchoate offences H. Abetment I. Conspiracy J. Attempt **Read** Principles of Criminal Law: Andrew Ashworth(Clarendon Law Series, chapter 11, p.442 -468); Text Book on Criminal Law: Michael J. Allen (chapter 8-p. 228- 271); Text Bookof Criminal Law: Glanville Williams (Universal Law Publishing Co.; p. 402-445). CriminalLaw: Smith and Hogan (Oxford University Press; p. 379-464). Criminal Law: Clarkson andKeating (Thomson: Sweet & Maxwell; p. 471-538). **Module V.A.** Jurisdiction of India **Read;** Text Book of Criminal Law: Glanville Williams(Universal Law Publishing Co.; p. 164-170). Indian Penal Code: R.A. Nelson's (Butterworth's; Volume I; p.1-70). The Indian PenalCode: Ratanlal & Dhirajlal (Wadhwa & Company Nagpur; p. 2-10). B. General explanations of the Indian Penal Code Chapter II **Module VI.** Crime and punishment/ Chapter-III Necessity and objectives of punishment Different theories of punishment Modern theory of punishment **Read;** Text Book of Criminal Law: Glanville Williams(Universal Law Publishing Co.; p. 36-41). Criminal Law: Smith and Hogan (Oxford University Press; p. 3-9). Criminal Law:Clarkson and Keating (Thomson: Sweet & Maxwell; p. 26-70). **Module VII.** General Exceptions to Crimes under Indian Penal code – General importance and purpose of basis these exception K. Absence of Mens rea L. For the ends of justice A. Absence of Means rea 1. Mistake of fact, not mistake of law 2. Accident 3. To cause lesser harm, to save greater harm & compulsion 4. Infancy , doly incapex & doly capex principle 5. Act in good faith and for the benefit of victim 6. Acts done under compulsion

	Cases for reference & Study.*R. v. Prince (1875)LR 2 CCR 154; R v. Tolson (1889) 23 QBD168, Sherras v. De Rutzen [1895] Q B 918, R v. Williams (1987)3 All ER 411, Hobbs v. Winchester Corporation, Warner v. Metropolital Police Commissinor, State of Maharastra v. M. H. George AIR 1965 SC 722, Nathumal v. State of M.P., Jogeswar v. Emperor , R. v. Clarck* *(1972)1 All ER 219, Bhupendra Singh A Chaudasma v. State of Gujrat AIR 1997 SC 3790, Southwark London Borougn Council v. Williams (11971)2 All ER 175,R. v. Duddley and Stephen (1884)14 QBD 273, Dhaniya Daji v. State, (1868) 5 BHC (Cr C) 59, Bishwambhar v. Roomal , Makhulshah (1886) 1 Weir 470, Mussamut Aimona, (1864)1 WR (Cr) 43, Ulla Mahapatra,(1950) Cut 293, Krishna Bhagwan v. State of Bihar AIR 1989 Pat. 217, M'Naughton's Case (1843)4 St. Tr. (NS) 847, Laxman Dagdu, Ashiruddin v. Emperor, 50 Cr.LJ 225 Cal., Nimn Sha v. M. P., 1996 Cr LJ 3395 MP, Director of Public Prosecutions v. Beard (1920)AC 479, Basdev v. State of Pepsu, 1956 Cr LJ 919, AIR 1956 SC 488, R. v. Lipman, (1969) 3 All ER, R. v. Kingston, (1994) 3 All ER 353 HL, Baboolan Hijrah, (1866)5 WR, Poonai Fattemah,(1869)12 W.R., Williams, (1923) 1 KB 340, Munney Khan v. State, AIR 1971 SC 1491, Biran Singh, AIR 1975 SC 87,* B. For the ends of justice 1. Judicial acts 2. Acts done under consent 3. Trivial offences **Module VIII.** . Right of Private Defence a. Right of private defence of body b. Right of private defence of property ***Cases for reference & Study****: Jaidev v. State of Punjab, AIR 1963 SC 612, Yogendra Morarji,AIR 1980 SC 660, Mathre v. State of Kerala, 1993 Cr LJ 213 Ker.; Rizwan v. State of Chhattisgarh (2003)2 SCC 661; Sucha Singh v. State of Punjab (2003)7 SCC 693* **References: Read** Criminal Law: Clarkson and Keating (Thomson: Sweet & Maxwell; p. 265onwards). Criminal Law: Smith and Hogan (Oxford University Press; p. 321-378). J W Cecil Turner: Kenny's Outlines of Criminal Law (Universal Law Publishing Co. Ltd.; p. 57-98).
Reference books	Williams Glanville- The Text Book of Criminal Law Jerom Hall – Studies in Jurisprudence and Criminal Theory

	Jw Cecil Turner (edt.) – Kenny's Outlines of Criminal Law Jw Cecil Turner - Russel on Crime Smith and Hogan – Criminal Law A.P. Simester & G.R. Sullivan – Criminal Law Theory and Doctrine R. C. Nigam – Principles of Criminal Law Prof. K.N. Chndranshekhar Pillai – Essay's on Indian Penal Code R. C. Srivastava – Law Relating to Crima Punishment Andrew Ashworth – Principles of Criminal Law P.S. Pillai – Criminal Law Prof K.D Gaur - Criminal Law Cases and Material Dr. Hari Singh Gaur – Penal Law of India (4 volumes) R. A Nelson – Indian Penal Code Prof. K.N. Chandranshekhar Pillai – Essay's on Indian Penal Code Ratan Lal and Dhiraj Lal – Indian Penal Code Prof. Raghavan – Indian Penal Code
Teaching Methodology	The Lecture method as it is one of the most important ways of teaching through which a teacher develops an understanding of the subject to its core by explaining a concept through examples, thereby making it a student centric approach. The Socratic method of teaching which gives an opportunity to the students to ask questions to the teachers would be emphasized by the teachers. Similarly, a variety of approaches has been adopted to achieve the objectives of the programme with the use of audio-visual aids, charts, projectors, power point presentations, LCD projectors and all other tools to disseminate knowledge to the students.
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Semester 4								
Course Code	**Title**	**Teaching per week**		**Course Credit**	**University Examination**		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
2005000504010001	Fundamentals of Entrepreneurship - II	6	0	6	3hrs	70	30	100

2005000504020001	Principles of Business Management - II	6	0	6	3hrs	70	30	100
2005000504030001	Legal English and Communication Skill	6	0	6	3hrs	70	30	100
2005000504040001	Administrative Law	6	0	6	3hrs	70	30	100
2005000504050001	Law of Crimes-II	6	0	6	3hrs	70	30	100

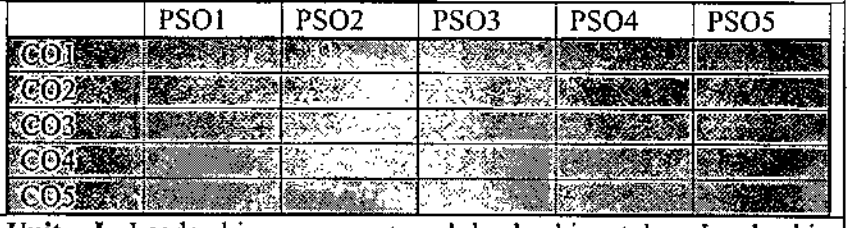
Course: 2005000504010001: Fundamentals of Entrepreneurship – II

Course Code	**2005000504010001**
Course Title	**Fundamentals of Entrepreneurship – II**
Credit	6
Teaching per week	6 hrs.
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	To understand the Fundamentals of Entrepreneurship
Course objective	Understanding basic concepts in the area of entrepreneurship, understanding the stages of the entrepreneurial process, adopting of the key steps in the elaboration of business ideas, developing personal creativity and entrepreneurial initiative.
Course outcome	**CO1** Entrepreneurship and Innovation minors will develop and cultivate endurance. Students increase their awareness and deliberately practice the skills and disciplines necessary to increase confidence and agency; foster self-efficacy and self-advocacy; improve communication and problem-solving skills manage strong impulses and feelings; and identify personal purpose. **CO2** Evaluate the effectiveness of different entrepreneurial strategies, **CO3** Specify the basic performance indicators of entrepreneurial activity **CO4** Analyse various programmes started by government for the development of entrepreneurial activities. **CO5** Encourage students to consider exploring entrepreneurial activities outside the domestic setting **CO6** Prepare them to see through a different set of lenses in order to better and more accurately identify global opportunities **CO7** Equip them with various skills to better meet and tackle complex global challenges
Mapping between CO's with PSOs	CO1 [redacted]

	CO2	
	CO3	
	CO4	
	CO5	
	CO6	
	CO7	
Course Content	Unit I. Entrepreneurial Development Programmed (EDP): EDP, their role, Objectives, relevance, and achievements; Role of Government in organizing EDPs; Issues and Misconceptions about EDP, Critical evaluation. **(30%)** Unit II. Role of Entrepreneur : Role of an entrepreneur in economic growth as an innovator, generation of employment opportunities, complimenting and supplementing economic growth, bringing about social stability and balanced regional development of industries ;Role in export promotion and import substitution , forex earning and augmenting and meeting local demand.**(40%)** Unit III Projects: - Top Entrepreneurs globally, Achievements of entrepreneur as leaders, Top10 Entrepreneurs in each sector, Future of Entrepreneurs in India. **(30%)**	
Reference books	1. Tandon B.C: Environment and Entrepreneur; Chugh Publication, Allahabad. 2. Siner A David: Entrepreneurial Megabuks; Johan Wiley and Sons, New York. 3. Srivastava S.B : A Practical Guide to Industrial Entrepreneurs ; Sultan Chand and Sons, New Delhi 4. Prasanna Chandra: Project Preparation, Appraisal, Implementation; Tata McGraw Hill, New Delhi. 5. Pandey I.M Venture Capital – The Indian Experience; Prentice Hall Of India. 6. Holl: Entrepreneurship –New Venture Creation; Prentice Hall of India.	
Teaching Methodology	Lecture method, discussion method and PPT presentation	
Evaluation Method	Internal Assessment	
	Internal Written Test (Compulsory)	15 Marks
	Attendance	05 Marks
	Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
	External University exams	70 marks

Course: 2005000504020001: Principles of Business Management – II

Course Code	**2005000504020001**
Course Title	**Principles of Business Management – II**

Credit	6
Teaching per week	6 hrs.
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	To understand the important principles of Business management
Course objective	Gain practical skills and personal attributes and competencies that is required for managerial position. Describe the four management functions of planning, organizing, leading, and controlling. Outline the historical evolution of management theories. Explain how decisions are made within an organization and how those decisions are communicated to the various stakeholders
Course outcome	**CO1** Analyze effective application of PPM knowledge to diagnose and solve organizational problems and develop optimal managerial decisions. **CO2** To familiarize the students with concepts and principles of Management. Students would be aware of the importance of controlling techniques and effective control systems. **CO3** Evaluate leadership styles to anticipate the consequences of each leadership style" Students would learn the functions of organizing through the case study approach, the concept of departmentalization, leadership and organization structure. **CO4** Evaluate different approaches for organizational control and outline the control process and discuss the various methods of control available to the manager **CO5** Evaluate the alternative leadership styles and make a decision regarding their appropriate use
Mapping between CO's with PSOs	
Course Content	**Unit I.** Leadership – concept and leadership styles; Leadership theories (Tannenbaum and Schmidt.); Charismatic theory , Trait, behavioural, Situational theory, Likert's System Management ; Leadership styles, Leadership as a continuum, Managerial grid, Leadership styles in Indian Organization.**(35%)** **Unit II.** Managerial Control: Concept and process; Effective control system; Techniques of control, operational control techniques. **(30%)** **Unit III.** Management of Change; Concept , nature and process of planned change, Resistance to change; Emerging horizons of management in changing environment, challenges before

<table>
<tr><td></td><td>Indian managers in the 21st century, Social Responsibility, Ethical issues, corporate governance . (35%)</td></tr>
<tr><td>Reference books</td><td>1. Drucker Peter F: Management Challenges for the 21st Century; Butterworth Heinemann, Oxford.
2. Weihrich and Koontz, et al: Essentials of Management; Tata McGraw Hill, New Delhi.
3. Fred Luthans : Organizational Behavior ; McGraw Hill, New York.
4. Louis A. Allen: Management and Organization; McGraw Hill, Tokyo.
5. Ansoff H I : Corporate Strategy ; McGraw Hill, New York.
6. Hampton, David R: Modern Management; McGraw Hill, New York.
7. Stoner and Freeman: Management; Prentice-Hall, New York.
8. Principles and Practices of Management - L. M. Prasad.</td></tr>
<tr><td>Teaching Methodology</td><td>Lecture method, discussion method and PPT presentation</td></tr>
<tr><td>Evaluation Method</td><td>Internal Assessment
<table>
<tr><td>Internal Written Test (Compulsory)</td><td>15 Marks</td></tr>
<tr><td>Attendance</td><td>05 Marks</td></tr>
<tr><td>Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course</td><td>10 Marks</td></tr>
<tr><td>External University exams</td><td>70 marks</td></tr>
<tr><td>Total</td><td>100 marks</td></tr>
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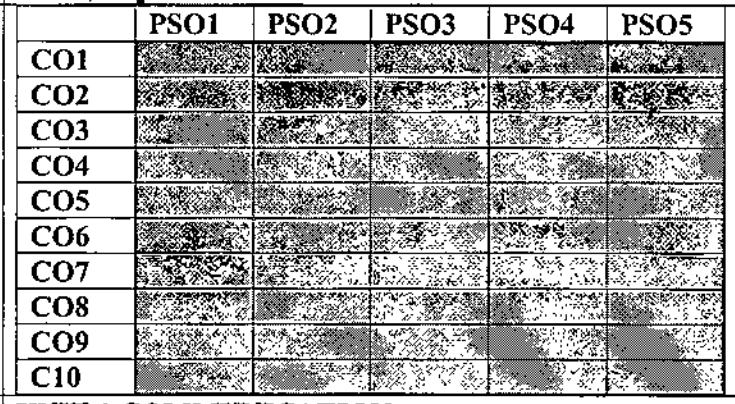
Course: 2005000504030001: Legal English and Communication Skill

Course Code	**2005000504030001**
Course Title	**Legal English and Communication Skill**
Credit	6
Teaching per week	6 hrs.
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	To improve communication skills of law graduates. To acquaint the students understand the legal English and develop effective communication skills for legal profession
Course objective	Communication skills have become immensely important for a good and effective lawyer-ship. A good communicator not only impresses the listeners but also easily makes space within the social systems. At the same time an effective communication helps to tackle the client interviews effectively. Court rulings and legal reasoning need good communication skills so as to provide an impressive reading the

	worldwide. Therefore, the subject will certainly be helpful in excelling communication skills and lawyer-ship of the individual.
Course outcome	**CO1** To Produce organized and coherent communications and essays with clear paragraphs and appropriate methods for introducing and concluding. **CO2** To Produce well-supported communications and essays using different patterns of development taking into consideration purpose and audience. **CO3** Focuses on developing preliminary legal knowledge which inter-alia helps to cope with learning the law. **CO4** Précis writing/drafting reports etc. the interpretation skills and effective understating of judgements, law texts, etc. **CO5** Essays written by eminent writers on law gives various dimensions on the legal professions and learning the law **CO6** To understand the principles of law its process and application in various streams in the legal world **CO7** To Equip with legal knowledge and functional skills **CO8** To understanding of legal perspective of various global issues **CO9** To ethical reasoning and professionalism **C10** Awareness on various political, socio-economic, environmental issues, etc.
Mapping between CO's with PSOs	
Course Content	**UNIT 1 COMMUNICATION** • Definition and role of communication, Basic purpose/objective, ingredients, principles and process of communication. • Oral(verbal) and written communication(non-verbal) • Barriers to Communication • Group discussions, dos and don'ts of group discussions **UNIT 2 LEGAL COUNSELLING** • Definition and its differentiation from general counseling • Approaches to Counseling • Benefits and advantages of effective client counseling **CLIENT INTERVIEWING** • Meaning and significance". • Different Components: listening, types of questions asked, Information gathering, Ethical consideration

	UNIT 3 MOOTING : • Meanings • Essentials • Significance of mooting to law students **UNIT 4 Legal Writing Exercises on writing documents such** • Will • Divorce by mutual consent u/s 13B • Petition for maintenance by wife u/s 125 of Crpc • Consumer Complaint under the consumer protection act • Sale deed and Partnership deed
Reference books	-
Teaching Methodology	Lecture method, Discussion method, Through power point, Group discussion methods, Assignment method, Through Book, Journals, Bare Act etc.
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Course: 2005000504040001: Administrative Law

Course Code	**2005000504040001**
Course Title	**Administrative Law**
Credit	6
Teaching per week	6 hrs.
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	Administrative Law specifically addresses in delivering two fundamental aspects of good governance, viz., (a) rule based administration replacing discretion based arbitrary administration and (b) delivery of administrative justice, justice to be delivered at the door step. Administrative justice is critical in a welfare state where limitative justice cannot reach.
Course objective	Administrative Law specifically addresses in delivering two fundamental aspects of good governance, viz., (a) Rule based administration replacing discretion based arbitrary administration and

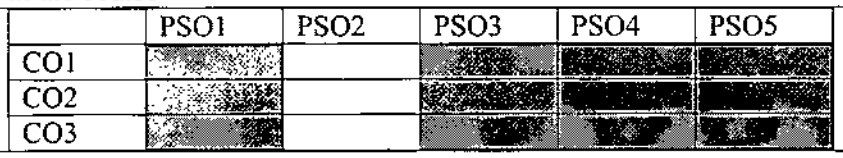
<table>
<tr><td></td><td>(b) Delivery of administrative justice, justice to be delivered at the door step.
Administrative justice is critical in a welfare state where litigative justice cannot reach.</td></tr>
<tr><td>Course outcome</td><td>CO1 Students will learn about the Nature Development of law relating to administration and effective means of administrative control. The Focus is on their role in protecting the rights of individuals against abuse of administration and adjudicatory powers of the administration and liability of administrative authorities.
CO2 Analyse and predict how unresolved or ambiguous administrative law questions could be resolved by the courts through an analysis of case law and the judicial method.
CO3 Identify, explain and apply the principles of administrative law covered in the course.</td></tr>
<tr><td>Mapping between CO's with PSOs</td><td><table><tr><td></td><td>PSO1</td><td>PSO1</td><td>PSO1</td><td>PSO1</td><td>PSO1</td></tr><tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>Course Content</td><td>Module I: Evolution and Scope of Administrative Law: Nature, Scope and Development of Administrative Law, Rule of law and Administrative Law, Separation of powers and its relevance, Relationship between Constitutional law and Administrative Law, Administrative Law vis-à-vis privatization, Classification of functions of Administration.
Module 2: Legislative Functions of Administration: Necessity and Constitutionality, Forms and requirements, Comparative position – U.K., USA & India, Control- i. Legislative ii. Judicial, Sub-delegation
Module 3: Judicial Functions of Administration: Need for devolution of adjudicatory authority on administration, Administrative Tribunals– Constitution, powers, procedures, rules of evidence, Principles of Natural Justice - Rule against bias, Audi Alteram Partem, Essentials of hearing process, Cross examination, Legal representation - right to counsel, Pre and post - decisional hearing, Reasoned decisions, Exceptions to Principle of Natural Justice, Effect of failure - Rules of evidence – no evidence, some evidence and substantial evidence, Institutional Decisions
Module 4: Administrative Discretion and Judicial Control of Administrative Action:
Need for conferring discretion on administrative authorities and its relationship with rule of law, Rule of law and administrative discretion, Constitutional imperatives and exercise of discretion, Grounds of judicial review - i. Abuse of discretion, ii. Failure to exercise discretion, Doctrine of legitimate expectations, Doctrine of Proportionality, Public Accountability</td></tr>
</table>

	Module 5: Judicial Control of Administrative Action: Introduction, Court as the final authority to determine the legality of administrative action, Exhaustion of Administrative remedies, Locus standi, Laches, Res judicata, Judicial review and its extent **Module 5: Methods of judicial review:** Statutory appeals, Writs – Habeas Corpus, Mandamus, Certiorari, Prohibition and Quo warranto,, Declaratory judgements and injunctions, Civil Suits for Compensation **Module 6: Personal Liability:** **Module 7: Ombudsman:** Concept and need, Lokpal and Lokayukta
Reference books	1. M. P. Jain & S.N.Jain, Principles of Administrative Law 2. I. P. Massey, Administrative Law 3. Wade, Administrative Law 4. C. K. Takwani, Lectures on Administrative Law 5. S. P. Sathe, Administrative Law
Teaching Methodology	Lecture method, discussion method and PPT presentation
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
TOTAL	100 marks

Course: 2005000504050001: Law of Crimes-II

Course Code	**2005000504050001**
Course Title	**Law of Crimes-II**
Credit	6
Teaching per week	6 hrs.
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	This course is designed with a prime object to familiarize students with the principles of criminal liability and other concepts of substantive criminal law.
Course objective	• To examine the historical evolution of criminal law maxims, doctrines, and principles. • To analyze the sentencing policy of the penal law of the land. • To know the elements of crimes against person, property, order, and state.

	• To articulate the differences between Indian Law on one hand which is codified and non-codified British law? • To articulate informed opinion over important, controversial issues in criminal law. • To recognize important considerations dealing with the rights of criminal defendants.
Course outcome	**CO1:** To illustrate how society views crime against women, human body and property. **CO2:** Demonstrate an in-depth understanding of the aspects of criminal justice, or law and its relationship to larger social issues **CO3:** Identify, explain and apply the principles of criminal law covered in the course
Mapping between CO's with PSOs	
Course Content	**Module I. Offences affecting to Human body (Sec 299-377)** (A) Offences against Human Life (ss 299 – 318) I. Culpable Homicide (SS 299, 301 & 304) II. Murder ss300-303 III. Causing death by negligence (ss 304A) IV. Abetment of suicide (ss 305-306) V. Attempt to commit the above three offences (ss 307 -309) VI. Being a Thug (ss 310-311) VII. Causing miscarriage, exposure by children (ss 307-309) Referred Cases: • R v Govinda IBL Bom 342 • R Punaiya v State • Versa Singh v. Sate of Punjab AIR 1958 Sc 465 (Injury Sufficient to cause death.) • Chhote Singh Vs. State of Rajasthan (Injury Sufficient to cause death) • KM Nanavati Vs. State of Maharastra, AIR 1962 SC 605 • Honsa Singh Vs. State of Punjab AIR 1977 SC 1801 • Jagnohan Singh vs State of U.P. AIR 1973 SC 947 • Bachan Singh vs Sate of Punjab AIR 1980 Sc 898 • Machhi Singh Vs State of Punjab AIR 1983 SC 957 • Nathu Ram Godse vs The Crorum AIR 1983 Easi Punjab 321 • Kehar Singh Vs. Delhi Administration AIR 1988 SC 1883 • Laxman Naik Vs State of Orissa AIR 1995 Sc 1387 • State CBI/SIT Vs Nalini and Others (1999) 105 Cr,. LS 3124 **Exception 1.** Muther vs State of Tamil Nadu (2007) September 547Act of Sadomoy on Som Exc 1 to 300 **Exception 2.** Lachmi Koeri Vs. State of Bihar, AIR 1960 Pat. 62 **Exception. 3** Dukhi Singh vs State AIR 1955 All 379 **Exception 4.** Amrithalinga Nadu Vs. State of Tamil Nadu AIR 1976 SC 1133

	• Naveen Chandra Vs State of Uttarnchal AIR 2007 SC 363 • Pappu Vs. State of Madhya Pradesh AIR 2006 SC 2659 Ajit Pasv **Exception 5.** • Dasrath Paswan vs State of Bihar AIR 1958 Pat 190 **S-301** • Ballan vs State of Uttar Pradesh AIR Rig 55 All 626 **S-303** • Mithhu Vs State of Punjab AIR 1983 SC 473, US – Lockt Vohir 43845596 (1977) - 466. (Constitutionality of Death Sentence). **S-304A** Homicide by negligence 304A • Juggan Khan v. State of M.P. AIR 1965 SC 831 Doctor negligently injected poisons liquid • Jacob Mathew Vs State of Punjab (2005) 6 Sec1 – 454 (B) Offences against the Human body (319-377) I. Hurt (Simple and grievous) (Sec 329-338) II. Wrongful Restraint and wrongful confinement (ss 339 - 348) III. Criminal force & assault (ss 349-358) IV. Kidnapping, Abduction, Slavery & forced labours (ss 359-374) **Referred Cases:** • S. Vardarajan Vs State of Madras AIR 1965 SC 942 • Thakorilal D Vadgana Vs State of Gujurat AIR 1973 SC 2313 • R VA (1978) 3 ALLER 161 – 511 **S-364 A** • Abdul Karim Vs. Sate of Karnataka AIR 2001 SC 116 **Module II. Offences against women (SS 304B, 354, 509, 375-376ABCD, 363-373)** This chapter is divided into the following heads (A) Crimes under Indian Penal Code, 1960 (I) Dowry death (S. 304B) **Referred Cases:** • Shanti Vs Sate of Haryana AIR 1991 SC 1226 • State (Delhi Administration) Vs Laxman Kenar • Indian Federation of Women Lawer vs Shakumila • Brij Lal Vs Prem Chand AIR 1986 SC 250 • State of Pujab Vs. Prem Chand AIR 1989 SC • Sekhar Tiwari Vs. State of U.P. AIR 1989 SC 733 **S-306** • Sanjay Vs State of Maharstra AIR 2007 SC 1368 • State of Punjab v Iqbal Singh AIR 1991 SC 1532 **S-309**

	• Muruti Sripati Dubal Vs State of Maharastra 1987 LJ 743 • P Rathinan Vs Union of India AIR 1994 SC 1844 • Gian Kaur V.s State if Punjab AIR 1996 SC 946 (Constitutionality of Euthanasia and Mercy killing to be discussed). (II) Cruelty against Women by Husband or relatives 498A (III) Outraging modesty of a women (S. 354) • Rupan Deo Bajaj v. Kanwar Pal Singh Gill (1995) 6 Sec 194, AIR 1996 Sc 309 • Ram Das v. State W.B. AIR 1954 SC 711 (IV) Insulting the privacy of a woman (S. 509) (V) Rape (S. 375 – 376 ABCD Law commissions report 172) Referred Cases: • Tukaram v. State of Maharastra AIR 1979 SC 185 Mathere case • Dillip Singh v. State of Bihar (2005) 1 SCC 88 (Submission and Consent) . • Queen v. Flattery (1877) 2 ABD 410 (Consent under Misconception no defense). • Tulshidas Kandolkar v. State Goa (2003) 8 CC 590 (Girl of undeveloped mental faculties cannot be said legally consented). • State of Maharastra v. Prakash AIR 1992 SC 1275 • Sidheswar Ganguly v. State of West Bengal (Consent below 16) • Bharwada Bhogimbhai Hirjibhai v. State of Gujarat AIR 1983 SC 753 (Corroboration not necessary as essential ingredient) • Bodhisattava Gaulam v. Subhra Chakroborty AIR 1996 SC 922 (Compensation during pendency of case) • Delhi Domestic Working Women Forum v. Union of India AIR 1996 SC 922 (Broad parameters for assaulting rape victim by SC) • Priya Patel v. State of OGP AIR 2006 SC 2639 • Brother John Anthony v. State of Tamil Nadu (1992) CrLJ 1352 (Temple Monk Guilty of Sodomy on 13 yr Boy) • State of Karnataka v. Gauri Shankar Swammy T.O.I 3 February 2004 (Homosexual legality). (B) Crime under special laws (I) Commission of Sati (Prevention) Act, 1987 (II) Dowry prohibition act, 1961 (III) The immoral Traffic (Prevention) Act, 1956 (IV) The Indecent Representation of women (Prohibition) Act, 1986 (V) The child marriage restrain (Amendment) Act, 1979 (VI) Prevention of women from domestic violence Act, 2005 **Module III. Offences against marriage (SS 493-498)** (I) Mock Marriage (SS 493 & 496) (II) Bigamy (SS 493 & 496) Obligation on the part of Prosecution and Defence (Burden of proof) Personal matrimonial law Effect of conversion to another Religion Abutment of bigamous

	marriage **S- 493** • Raghunath Pandey Vs State AIR 1957 on 198 **S-494** • Urmila Vs State 1994 Crl 2910 (Sc.) • Sarla Mudgal Vs Union of India 1995 Crlj 2926 (SC) Conversion of Religion • Lily Thomas v. Union of India, AIR 2000 SC **S-496** • K.C. Chakraborty Vs Empeeror AIR 1937 Cal 214 (Cheating establishing when the accused wrongly represented himself to be of higher cast or sub cast- Cal HC) (III) Adultery (Sec 497) Obligation on Prosecution and defence Scope of the section English law on the point Constitution validity by the law of adultery Difference between adultery and Rape Malimath Committee Report Criminal Elopement (Sec 498) **Module IV. A. Offences against reputation and Criminal Intimidation, Insult and Annoyance (SS 499 – 502, 503-509)** • Mukund Matand Chitnis v. Madhuni Mukund Chitnis AIR 1972 SC 1804 • Harvhajan Singh v. State of Punjab AIR 1966 SC 97 • Sahib Singh v. State of Utter Pradesh AIR 1965 SC 145 I. Criminal Intimidation (SS 506-507) II. Insult (SS 504-509) III. Statements Conducive to public mischief (S 506) IV. Devine displeasure (S 508) V. Misconduct in public by drunken person (Sec 510) VI. Difference between criminal intimidation and extortion VII. Difference between insult and defamation VIII. Difference between assault and criminal intimidation **Module V. Offences against property (SS 378 462)** These offences can be put-into the following three categories A. Offences dealing with deprivation of property SS 378-424 (I) Theft (S. 378) along with its aggravated forms (SS 380-382) (II) Extortion (SS 383-389) (III) Robbery (SS 390, 392-394 & 401) (IV) Dacoity (SS 391, 395-400) & 402) (V) Criminal Misappropriation of Property (SS 403-404)

(VI) Criminal Breach of Trust (SS 405-409)
(VII) Receiving stolen property (SS 410-411)
(VIII) Cheating (SS 415 -420)
(IX) Fraudulent deeds and Disposition of property (SS 421-424)

Referred Cases:

- Behari Lal Vs State 1985 CrLJ 1507 (Del)
- Putton Vs State AIR 1992 SC 1032
- P.B. Aind Vs State of Maharastra 1995 CrLJ 1694
- State Vs Gopalan 1997 CrLJ NOC 279 (Icer)
- Om Prakash Vs State AIR 1983 SC 431
  (Looted property not recovered)
- Phool Kumar Vs Delhi Administration 1975 Sec (Cr) 336

A. Offences Dealing with Damage to property (SS 425-440)

- Mischief (Sec 425)
- Aggravated forms of mischief (SS 427-440)

Module VI. Offences relating to violation of rights to property and Document, Property & Currency

A. Violation of Rights to Property in order to commit other offences (SS 441-462)
   (I) Criminal Trespass (Section 441, 447)
   (II) House Trespass (Section 442, 448-452)
   (III) Lurking House Trespass ((Section 443-444, 453)
   (IV) House breaking (Section 445-462) including aggravated forms of housing braking

B. Offences relating to Documents and Property Marks (section 463-489E)
   (i) Forgery (section 463, 465)
   (ii) Marking a False document (section 464)
   (iii) Forged document (section 470)
   (iv) Falsification of accounts (section 477 A)
   (v) Other offences relating to documents (section 472-477)

Module VII. Offences affecting the public Health, Safety, Convenience, Decency and Morals (Sec 268-294A)

This chapter can be divided in the following three parts –

A Offences affecting the public health (Section 268-278)
B Offences affecting Public Safety and convenience
C Offences affecting decency and Morals. (Section 292-294 A

A. Offences affecting the Public Health (Section 268-278)

(i) Public Nuisance (S.268)
(ii) Acts likely to spread infection (section 269-271)
(iii) Pollution of food or drink (section 272-273)
(iv) Adulteration of drugs (section 274-276)
(v) Fouling water and relating atmosphere (section 277-278)

B. Offences affecting the public safety and Convenience (Section 277-278)

(i) Rash Driving or riding on a public way. (Section 279)
(ii) Rash or negligent navigation. (Section 280)
(iii) Exposing false light, mark or being mislead navigator
(iv) Conveying any person for hire by water in an unsafe and overloaded waste Vessel (Section 282)
(v) Causing danger or obstruction to any person in public way. (Section 283)
(vi) Negligent conduct with respect to poisonous substance.(Section 284)
(vii) Negligent conduct with respect to fire, combustible substances. (section 285-289)
(viii) Continuance of Nuisance. (Section 291)

C. Public Decency and Morals (ss 292-294A)

A. Prevention of obscenely (ss 292-294)
B. Keeping Lottery Office (S 294A)
C. Cases related to spreading of infectious diseases

Referred Cases:

- R Vs Hicklin (1868) LR 37B 360 Cockburn CJ
- Ranjeet D. Udeshi Vs State AIR 1965 SC 88
- Chandrakant Kalyandas Kakodkar Vs State AIR 1970 Sc 1390
- Samarosh Base Vs. Amal Miha AIR 1986 SC 967
- Prajapati Magazine Case
- Promila Kapoor vs. Yas Pal Bhasin 1989 CrLJ 1241 Del.
- Ra j Kapoor Vs. Laxman AIR 1980 SC 605
- G.P. Lamba Vs. Tarun Mehra 1988 CrLJ 610 (P & T)
- Uttam Singh Vs. Delhi Administration AIR 1974 SC 1230 (Play Card Case)

Module VIII. Offences against State, Public Peace and Tranquillity & Religion (SS 121-130, SS 141-160, 295-298).

The chapter can be divided into two parts –

A. Offences against State

This will cover the following headings –

(i) Waging war (SS 121-123, 125-127)
(ii) Assaulting high officer (S 124)
(iii) Sedition (S 124 A)
(iv) Suffering escape of, or harbouring a state prisoner or prisoner of war (SS 128-130)

B. Offences against Public Peace and Tranquillity (SS 141-160)

This chapter is divided into following five main heads.

(i) Unlawful assembly (SS 141-145, 149-151, 157-158)
(ii) Rioting (SS 146-148, 152-153)
(iii) Promoting enmity between classes (S 153A)
(iv) Knowingly carrying arms in any possession or taking part in any

	mass drill or mass training with arms (S 153AA) (v) Affray (SS 159-160) C. Offences Relating to Religion (SS 295-298) Constitution and Religious Freedom (Art 25-28) (i) Injuring or Defiling place or Worship with intent to insult the religion of any class (S. 295) (ii) Deliberate and Malicious acts intended to outrage religious feeling of any class or insulting its religion or religious belief (Sec 295A) (iii) Disturbing religious Assembly (Sec 296) (iv) Trespassing on Burial place etc. (Sec 297) (v) Uttering Words etc. with deliberate intact to wound the religious feelings of any person (Sec 498) **IX. Offences Relating to Public Servants, their Authority, False Evidence and Public Justice.**
Reference books	– Williams Glanville- The Text Book of Criminal Law – Jerom Hall – Studies in Jurisprudence and Criminal Theory – Jw Cecil Turner (edt.) – Kenny's Outlines of Criminal Law – Jw Cecil Turner - Russel on Crime – Smith and Hogan – Criminal Law – A.P. Simester & G.R. Sullivan – Criminal Law Theory and Doctrine – R. C. Nigam – Principles of Criminal Law – Prof. K.N. Chndranshekhar Pillai – Essay's on Indian Penal Code – R. C. Srivastava – Law Relating to Crima Punishment – Andrew Ashworth – Principles of Criminal Law – P.S. Pillai – Criminal Law – Prof K.D Gaur - Criminal Law Cases and Material – Dr. Hari Singh Gaur – Penal Law of India (4 volumes) – R. A Nelson – Indian Penal Code – Prof. K.N. Chandranshekhar Pillai – Essay's on Indian Penal Code – Ratan Lal and Dhiraj Lal – Indian Penal Code – Prof. Raghavan – Indian Penal Code
Teaching Methodology	The Lecture method as it is one of the most important ways of teaching through which a teacher develops an understanding of the subject to its core by explaining a concept through examples, thereby making it a student centric approach. The Socratic method of teaching which gives an opportunity to the students to ask questions to the teachers would be emphasized by the teachers. Similarly, a variety of approaches has been adopted to achieve the objectives of the programme with the use of audio-visual aids, charts, projectors, power point presentations, LCD projectors and all other tools to disseminate knowledge to the students.
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks	
Attendance	05 Marks	
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks	
External University exams	70 marks	
Total	100 marks	

Semester 5								
Course Code	**Title**	**Teaching per week**		**Course Credit**	**University Examination**		**Internal Marks**	**Total Marks**
		Theory	Practical		Duration	Marks		
2005000505010001	Jurisprudence	6	0	6	3hrs	70	30	100
2005000505020001	Family Law - I	6	0	6	3hrs	70	30	100
2005000505030001	Company Law	6	0	6	3hrs	70	30	100
2005000505040001	Labour Law - I	6	0	6	3hrs	70	30	100
2005000505050001	Taxation I : Direct Taxes	6	0	6	3hrs	70	30	100

Course: 2005000505010001: Jurisprudence

Course Code	2005000505010001
Course Title	**Jurisprudence**
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	The teaching ought to reorient to one which concerns itself with matters of national development in terms of human and natural resources utilization. There must be a paradigm shift from a historical pedagogy to an analytical pedagogy. An analytical approach is one in which analysis becomes more important than mere memorizing of doctrines or facts. It is difficult to import knowledge of doctrines about law and justice which have developed over 3000 years by mankind in various nations and historical situations within short span of one semester. However it is important to impart analytical skill to do jurisprudence, familiarizing a student with basic types of problems concerning law and types of solutions sought, so that he is not only able to use this skill in practice but is also motivated to take up detailed historical studies on their own after the course. The course intends to

	give prominence to basic questions and issues and to the development of analytical skill. The emphasis is on the types of problems and types of solutions along with specific doctrines. The course is in this sense open ended. The suggested readings are illustrative in nature. The basic idea of the course is to bring jurisprudence closer to our own reality, hence the teacher and the taught ought to make more and more use of Indian cases and materials as far as possible.
Course objective	At the heart of the legal enterprise is the concept of law. Without a deep understanding of this concept neither legal practice nor legal education can be a purposive activity oriented towards attainment of justice in society. Moreover, without a comprehension of the cognitive and teleological foundations of the discipline, pedagogy becomes a mere teaching of the rules. It is unable to present various statutes, cases, procedure, practices and customs as a systematic body of knowledge, nor is it able to show the inter-connection between these various branches of law, procedures and principles. Consequently, teaching becomes fragmented and devoid of any motivation which inspires one to pursue justice. The fact that the basic nature and purpose of law should be clear to every student and that it should be the very foundation of law teaching, needs little argument. Yet, by and large, traditional law teaching makes the learning of this subject very problematic for the student, whereas in truth, jurisprudence can be made into an easy and very exciting subject to teach and learn. There seem to be two major problems with the approach currently in practice. The first is that a great deal of time is spent on the historical development of various schools of thought. Now this is not bad in itself, but when in the first place, the students are neither aware nor clear as to what are the basic problems concerning law, such an approach in teaching is meaningless. In this rote method of memorizing schools and authors, the fundamental issues pertaining to the concept of law and how they relate to the creation of the just society, tend to get lost in the background. The answers that others have given concerning the nature of law are indeed important but not before one has grasped the nature of the problems concerning one's society. A course in jurisprudence should, primarily, induct the student into a realm of questions concerning law so that he is able to live with their perplexity or complexity and driven to seek out answers for himself. It should in no case begin with burdening the students with answers.
Course outcome	**CO1** At the end, students will be able to identify the differences between the major schools of jurisprudence concerning the nature of law. **CO2** Students will develop the skill in identification, articulation and critical evaluation of legal theory and the implications of the same for policy.

	CO3 Students will get the knowledge to frame an idea regarding major and minor premises of legal arguments and analyze legal debates using appropriate rhetorical vocabulary; **CO4** Students receive the ability of critical analyzation and research complex problems relating to law and legal theory and make reasoned and appropriate choices amongst alternatives.
Mapping between CO's with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					
CO4					

Course Content

1.Introduction

1.1Need to Study Legal theory - relationship of legal theory to the development of a just society - Use of the terms: legal theory, jurisprudence, concept of law, difference between theory, concept , hypothesis, conjectures, opinions, ideas, notions.

1.2 Norm and Normative system : difference between maxims, rules, principles and customary principles - rules and facts - difference between primary rule and secondary rule - types and orders of rules concerning classification, interpretation etc., - what is normative system - different systems like games, languages, religion, unions clubs etc - in what way they differ from legal system

2. Law : Different senses - why are laws obligatory? Whom does law obligate?

2.1 Concept of law in Natural Sciences - distinction between law in Natural Science and legal laws - similarities (eg. generality) and differences (eg. The way they bind an action).

2.2 Concept of law in Social Sciences (statistical and historical laws) - How are legal laws different from such social laws.

2.3 Different types of Orders of Systems - Physical order, Social order, Religious order - to which or in which laws are applicable - what type of order is legal order.

2.4 Why are laws obligatory? - Liability - Obligations (types) - Sanctions - Coercion - Compulsion - Duty - Estoppel - Promise- Dharma - Autonomous theories of obligation - basis of obligation arising out of peoples own social (general) or individual will

	2.5 Contractarian Theories - Rousseau, Hobbes, Kant, Kelsen - General Will Theories - People's, Constitutional or Sovereign Power - Mitchell, Rousseau, Conrad, Keshavanand Bharti Case - Free Will Theories (basis of obligation arising from individual will) - Aquinas, Del Vecchio, Kant and others. 2.6 Hindus and Buddhist Conceptions of Swadharma, Moksha, Nirvana - basis in individual's own free will to attain the ultimate in development. 2.7 Hetronomous Theories of obligatoriness theories which derive the basis of obligation from some one other than individual or people 2.8 Command (Will) of the Sovereign Theories (Dictatorial Legal Positivism) - Will of Sovereign different from will of the people - Austin, Bentham, Hart, Kautilya, Manu, ADM Jabalpur v Shivkant Shukla 2.9 Liberal Legal Positivism - Will of People reflected in some generally accepted conventions - Principles which the average, common or rational man would apply, such as in case of grammar of languages - Dworkin, Rawls. 2.10 Marxist Legal Positivism - basis of obligatoriness lies in the will of certain class of people - Marx, Pashukanis and others. 2.11 Transceandental Theories - Basis of obligation is located in trancendental will such as of God - Iben-Sen, Quran, Bible, Mahabharata (Shanti Parva), Vishnu Puran etc. - Judeo Cathoric View - The Islamic view - the Brahmanical view. 2.12 Whom does the law obligate? Personality (types) - People - the State - Locus Standi - Mitchell, Conrad, Keshavanand Bharti Case and other cases - Can law obligate the State ex Directive Principles of State Policy - Does law obligate absolutety? eg. Trials of Socrates, Gandhi - justness and unjustness of trial. 2.13 Theories of Authority - who has the authority to legislate and obligate us Why? - Types of authorities : legislative, judislative, judicial, sovereign customary, academic (experts), religious, international. 2.14 The Functions of Law - law as upholder of the moral order of society - original meaning of Dharma - differences between Dharma (moral order) and Purushartha (ideals), the realization of ideals including utopia through law - law for bringing efficiency and social

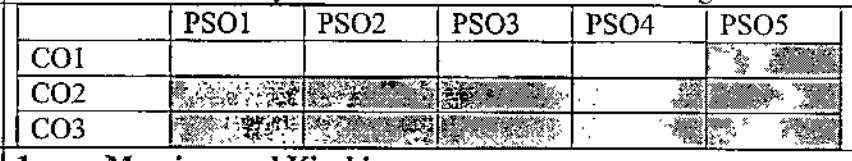
	stability, utilitarian views - differences between ends of a legal order, a political order and a religious order - are they interchangeable - can one replace the other - issues concerning dialectics of law - are ends of law necessary for xistence of a civil society - Can there be a civil society without legal order - Marxist view about withering away of State - Does it imply withering away of legal system? Is legal system necessary in heaven, swarga or utopia? 3. Schools of Jurisprudence 3.1 Analytical 3.2 Natural Law 3.3 Historical School 3.4 Sociological School 3.5 Economic Interpretation of Law 3.6 Critical Legal Studies 3.7 Feminist Jurisprudence 3.8 Indian Perspective - the concept of 'Dharma', Social justice, social action litigations, compensatory jurisprudence 4. Sources of Law 4.1 Legislation : Why does Parliament have authority to legislate – Positivist Theories - What are the limits of legislative authority? Positivistic View : there are no limits (Austin, Kelsen) Natural Law View : the limits are defined by principles of morality or natural justice (Acquinas, Finnis) Rationalistic View : limits are set by rational principles of justice (Kant,Rawls) Basic Structure Doctrine : limits are set by the Basic structure of the Constitution or the law itself, any legislation contrary to the basic structure in non-law (Keshavanand Case) - basic legal concept of reasonableness - The reasons for the limits of legislative authority dependancy of law on justice, different senses of justice, people's perception of what is just, the pervasiveness of justice in law, the criteria for just law, just law as an expression of external (public) morality of society, connection between law and morality, Just law as an expression of human rationality - law as a rational ideology - distinction between law as an ideology and law as a system for generation of alternative (competing) ideologies - the Trangression of limits of legislative authority, lawful modalities to check such transgression, People's Revolution, difference between coercion and violence - limits of justified coercion, relation between coercive system (the Police) and legal system, the dependency of law on coercion and the limits of coercion, the question of 'law and order' - can a legal order be maintained through coercion?

	4.2 Precedent : the Doctrine of Stare Decisis and its applicability - Why are the Supreme Court's judgments binding? Why do the Supreme Court and the High Courts have 'original' jurisdiction? What is meant by 'original'? - Why are Precedents binding? What if there is conflict of authorities, Does the judiciary have the final and absolute authority to determine what will obligate the people - the power of judicial review concerns the matters of State and also other types of conflicts of authority. 4.3 Custom : Basis of the Common Law presumption that customs can be binding. 5. Right and Duty - Juristic Concepts 5.1 Right and duty - acquisition, limited and lost 5.2 Kinds 5.3 Right in wider sense 6. Person 6.1 Nature of personality - theories, Status of unborn, minor, dead person, animal 6.2 Corporate Personality 6.3 Dimensions of modern legal personality 7. Possession and Ownership 7.1 Meaning - Kinds - theories - acquisition - loss 7.2 Distinction 8. Liability and Obligation 8.1 Liability - meaning - conditions - kinds - remedial and penal liability – Strict or absolute liability - Vicarious liability 8.2 Obligation - meaning - chose in action - moral and legal obligation – sources and kinds - breach. 8.3 Mental elements - act - omission - mens rea, intention, malice, motive, knowledge, negligence and recklessness. 9. Property and Titles 9.1 Property - meaning - rights - theories - kinds - modes of acquisition and loss 9.2 Titles - meaning - facts and kinds of facts - acts in law - acts of law -agreements and kinds.
Reference books	– Bodenheimer : Jurisprudence - The Philosophy and Method of Law (1996), Universal, Delhi – Fizgerald, (ed.) : Salmond on Jurisprudence (1999) Tripathi, Bombay – W. Friedmann : Legal Theory (1999) Universal, Delhi – V.D.Mahajan : Jurisprudence and Legal Theory (1996 re-print), Eastern, Lucknow

	– M.D.A. Freeman (ed.) : Lloyd's Introduction Jurisprudence, (1994), Sweet & Maxwell – Paton G.W. : Jurisprudence (1972) Oxford, ELBS – H.L.A. Hart : The Concepts of Law (1972) Oxford, ELBS – Roscoe Pond : Introduction to the Philosophy of Law (1998 Re-print) Universal, Delhi – Dias : Jurisprudence (1994 First Indian re-print), Adithya Books, New Delhi – Dhyani S.N. : Jurisprudence: A Study of Indian Legal Theory (1985), Metropolitan, New Delhi. – Indra Deva Shrirama : Growth of Legal System in Indian Society (1980) – Chhatrapati Singh : Law From Anarchy to Utopia (1985). Pl. refer Preface Introduction Part-II – Hans Kelsen : Pure Theory of Law : The Communist Theory of Law – Del Vechhio : General Principles of law – John Austin : The Province of Jurisprudence Determined – C.K. Allen : Law in the Making – Lon Fuller : The Morality of Law – Geofrey Sawer : Law in Society (1973) – Carlos E. Alchouron : Normative Systems (1971) – Karl Marx : The Critique of Political Economy – Joseph Raz : Authority of Law – Thomas Hobbes : Leviathan – James Sterba : Justice – J.S. Mill : On Liberty – Austin B. Creel : Dharma in Hindu Ethics – Immanuel Kant : Perpetual Peace – Otto Von Gierke : Natural Law and Theory of Society
Teaching Methodology	Lecture method, discussion method and PPT presentations
Evaluation Method	Internal Assessment Internal Written Test (Compulsory) – 15 Marks Attendance – 05 Marks Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course – 10 Marks External University exams – 70 marks Total – 100 marks

Course: 2005000505020001: Family Law - I

Course Code	2005000505020001
Course Title	**Family Law – I**
Credit	6

Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	To familiarizes the students with the concept of Family laws. To introduce students to The Course contents primarily are law relating to marriage and kinship; customary practices and State Regulations; Conversion and effect of conversion on family; matrimonial remedies; alimony and maintenance; family and its changing patterns; matrimonial home and settlement of spousal property; Uniform Civil Code.
Course objective	The course structure is designed mainly with three objectives in view. One is to provide adequate sociological perspectives so that the basic concepts relating to family are expounded in their social setting. The next objective is to give an overview of some of the current problems arising out of the foundational inequalities writ large in the various family concepts. The third objective is to view family law not merely as a separate system of personal laws based upon religions but as the one cutting across the religious lines and eventually enabling us to fulfill the constitutional directive of uniform civil code. Such a restructuring would make the study of familial relations more meaningful. The Bar Council of India has suggested that the Family Law is to be taught in two courses while the CDC had prepared the syllabus for a comprehensive full course on Family Law. The CDC syllabi being elaborate embracing various aspects of Family Law, each University Board of Studies has the discretion to divide the CDC paper on Family Law into two.
Course outcome	**CO1** To provide adequate sociological perspective so that the basic concepts relating to family are expounded in their social setting **CO2** To give an overview of current problems arising out of the foundational inequities and inequalities writ in the various family concepts. **CO3** To view family law not merely as a separate system of personal laws based upon religions but as the one cutting across the religious lines and eventually enabling us to fulfil the constitutional directive of uniform civil code. Such a restructuring, would make the study of familial relations more meaningful.
Mapping between CO's with PSOs	
Course Content	**1. Marriage and Kinship** 1.1 Evolution of the institution of marriage and family 1.2 Role of religion, rituals and practices in moulding the rules regulating marital Relations 1.3 Lineage – Patrilineal and matrilineal; Authority structure-patriarchal and Matriarchal; Location - patrilocal and matrilocal; Number of conjugal units – Nuclear, extended, joint and composite

	1.4 Emerging concepts - maitri sambandh, live-in relationships, divided home **Customary practices and State regulations** 2.1 Polygamy 2.2 Concubinage 2.3 Child marriage 2.4 Sati 2.5 Dowry 2.6 State interventions through various legal measures **3. Conversion and its effect on family** 3.1 Marriage 3.2 Adoption 3.3 Guardianship 3.4 Succession **4.Matrimonial Remedies** 4.1 Non-judicial resolution of marital conflict problems - customary dissolution Of marriage Judicial resolution of marital conflict problems - a general perspective of Matrimonial fault theory and the principle of irretrievable breakdown of Marriage 4.3 Divorce and Divorce by mutual consent under Personal Laws and Secular Laws 4.4 Nullity of marriage 4.5 Restitution of conjugal rights 4.6 Judicial separation 4.7 Option of Puberty 4.8 Grounds for matrimonial relief - cruelty, desertion, adultery etc. 4.9 Bars to Matrimonial reliefs - doctrine of strict proof - accessory – connivance - Collusion - condonation - improper or unnecessary delay - taking advantage of one's own wrong or disability - Residuary clause - no other ground exists for refusing the matrimonial relief **5.Alimony and Maintenance** 5.1 Maintenance under the personal laws of neglected wives, divorced wives, Minor children, disabled children, parents 5.2Provisions under the Code of Criminal Procedure, 1973, for maintenance of Those who are unable to support themselves 5.3 Alimony and maintenance as an independent remedy; a review under different Personal laws 5.4Alimony and maintenance as an ancillary relief, alimony pendent lite and Permanent maintenance. 5.5Maintenance of divorced Muslim women and the Muslim Women (Protection Of Rights on Divorce) Act, 1986 a critical review. **6.Family and its changing patterns** 6.1 Family ties - New emerging trends 6.2New property concepts - new skills

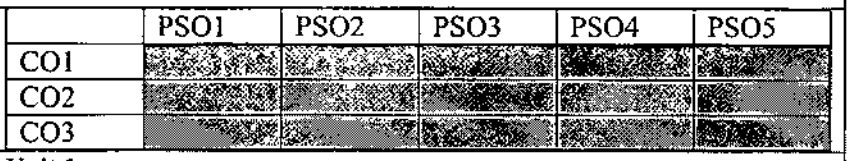
	6.3Factors affecting family-demographic, environmental, cultural, legislative 6.4Processes of social change in India - Sanskiritization, Westernization, Secularization, Universalization, Parochialization, Modernization, Industrialization and Urbanization 6.5Settlement of Spousal property - Need for development of law **7.Uniform Civil Code: Need** 7.1 Religious pluralism and its implications 7.2 Connotations of the directive contained in Article-44 of the Constitution 7.3 Impediments to formulation of the Uniform Civil Code 7.4 The idea of optional Uniform Civil Code
Reference books	– Paras Diwan: Hindu Law (1985) - Paras Divan: Family Law: Law of Marriage and Divorce in India (1985) - Kusum: Marriage and Divorce Law Munual (2000) Universal - Manchanda: S.C. Law and Practice of Divorce in India (2000) Universal - P.V. Kane: History of Dhamasastra (1974) - A. Kuppuswami (ed): Mayne's Hindu Law and Usage (1986) - B. Sivaramayya: Inequalities and the Law (1985) - K.C. Diya: Population control though family planning in India, "Indian Journal of Legal Studies 85(1979) - J.D.M. Derrett: Hindu Law: Past and Present - : Death of Marriage Law - A.A.A. Fyzee: Outlines of Mohammedan Law (1998) - J.D.M. Derrett: A Critique of Modern Hindu Law (1970) - S.T. Desai (ed.): Mulla's Principles of Hindu Law (1998, Butterworths - A.M. Bhattachargee: Muslim Law and the Constitution (1994) Eastern Law House, Calcutta - : Hindu Law and the Constitution (1994) Eastern Law House, Calcutta - Iravati Karve: Kinship Organisation in India (1953) - K.M. Kapadia: Marriage and Family in India - W.J. Goode: The Family (1964) - F.B. Tyabji: Muslim Law (1968) - N.R.M. Menon (ed.): National Convention on Uniform Civil Code for All Indians (1986) - I.F.G. Baxter: Marital Property (1973) - Vasudha Dhagamwar: Women and Divorce : Towards Uniform Civil Code (1989) Tripati, ILI - Tahir Mahommod: Muslim Personal Law (1977) Vikas
Teaching Methodology	The Lecture method as it is one of the most important ways of teaching through which a teacher develops an understanding of the subject to its core by explaining a concept through examples, thereby making it a student centric approach. The Socratic method of teaching which gives an opportunity to the students to ask questions to the teachers would be emphasized by the teachers. Similarly, a variety of approaches has been adopted to achieve

	the objectives of the programme with the use of audio-visual aids, charts, projectors, power point presentations, LCD projectors and all other tools to disseminate knowledge to the students.
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Course: 2005000505030001: Company Law

Course Code	2005000505030001
Course Title	Company Law
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	In view of the important developments that have taken place in the corporate sector, the course is designed to understand the formation, management and other activities of the companies. Important regulations pertaining to the issue of shares and the capital raising have come into force. This course aims to impart the students, the corporate management, control, possible abuses, the remedies, and government regulation of corporate business and winding up of companies.
Course objective	Industrialization plays a very vital role in the economic development of India. In the post-Independence era, industrial regulation is employed as a principal means in the strategy for attaining constitutional values. Companies are no doubt powerful instruments for development. Besides bringing returns and financial benefits to the capital and labour they help amelioration of the living conditions of masses. In a developing society like India, vast varieties of consumer goods are manufactured or produced and different kinds of public utility services are generated both for general welfare and consumption purposes. Obviously, it is beyond the capacity of one or a few entrepreneurs to engage into such activities. Because the problem of raising large capital needed for such enterprises, there is a looming danger of market risks. Hence, taking recourse to the device of incorporation is the only efficacious way to surmount all such hurdles.

Course outcome	**CO1** To understand the economic and legal dimensions of corporations in the process of industrial development in establishing 'just' social order in the context of constitutional values. **CO2** To acquaint the students with the normative, interpretative, philosophical and economic contours of various statutory rules relating to corporations. **CO3** To evaluate the application and functioning of such statutory rules in their roles for establishment of 'just' and 'socialist' social order in India.
Mapping between CO's with PSOs	
Course Content	**Unit 1** Company: Definition, Corporate Personality – Types of Companies – Nature – Advantages and Disadvantages – Highlights of Companies Act, 2013 – Registration & Incorporation of Company **Unit 2** Memorandum of Association: Various Clauses – Alteration therein – Doctrine of Ultra Vires Articles of Association – Binding Force – Alteration – Its relationship with Memorandum of Association – Doctrine of Constructive Notice and Indoor Management – Exceptions Prospectus: Issue – Contents – Liability for Misrepresentation – Remedies for Misrepresentation – Statement in lieu of Prospectus Promoters: Position – Duties and Liabilities **Unit 3** Shares: General Principles of Allotment – Statutory Restrictions – Share Certificate – Transfer of Shares – Dematerialized Shares (DEMAT) Shareholder & members of Company: Who can be and cannot be a shareholder – Modes – Calls on shares – Forfeiture and surrender of Shared – Lien on Shares – Rights and Privileges of Shareholders Share Capital: Kinds – Alteration – Reduction – Further Issue of Share Capital **Unit 4**

	Directors – Position – Appointment – Qualifications – Vacation of Office – Removal & Resignation of Directors – Powers & Duties of Directors – Role of Nominee Directors – Managing Director – Independent Director Meetings – Kinds – Procedure – Voting Dividends – Profit – Bonus Shares – Audit – Auditors – Position, Rights and Duties of an Auditor – Accounts – Debentures – Kinds of debentures Borrowing Power – Charge – Fixed and Floating Charge – Protection of Minority Rights Prevention of Oppression and Mismanagement – Who and when can apply - Overview of Corporate Social Responsibility **Unit 5** Reconstruction & Amalgamation of a company – Mergers and Acquisitions Winding Up – Types – Powers of Liquidator – Powers of Court Statutory Bodies – SEBI – CCI – Introduction to BPO and LPO Corporate Liability: Civil and Criminal – Legal Liability of Corporations and remedies available against them
Reference books	- Avtar Singh : Indian Company Law (1999), Eastern, Lucknow - L.C.B. Gower : Principles of Modern Company Law (1997) Sweet and Maxwell, London - Palmer : Palmer's Company Law (1987), Stevans, London - R.R. Pennington : Company Law (1990), Butterworths - A. Ramaiya : Guide to the Companies Act, (1998), Wadha - S.M. Shah : Lectures on Company Law (1988), Tripathi, Bombay - Aiyar A.M. and Ramchandran T.A. : Companies Act - Allsop Peler : Company Law - Leading Cases in a Nutshell, Sweet and Maxwell - Bhargava V.K. and Bhargava B.P. : Company Act, 1956, Taxman - Cain T.E. : Private Companies - Topham and Ivamy : Company Law, Butterworth
Teaching Methodology	Lecture method, discussion method and PPT presentation
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks

	External University exams	70 marks
	Total	100 marks

Course: 2005000505040001: Labour Law - I

Course Code	2005000505040001
Course Title	Labour Law - I
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	The student should get an insight into the mechanics of socio-legal control of labour relations. The student should exposed to the history, the present norms, the emerging areas, and possible future techniques of labour jurisdiction. The syllabus for both core compulsory courses on Labour and Industrial Law is prepared with this perspective in view.
Course objective	Protection of labour is a constitutional mandate A Constitution inspired by the vision of social justice is committed to the cause of upliftment of labour. Well balanced industrial development leads to increased productivity which in turn is a factor of national progress. Labour makes significant contribution in this respect. Is labour merely a commodity? Is it only a factor in production? There may be different approaches towards this question one fact is certain. Today's labour is engaged in a battle for position of honour and status equal with management. Shedding away old laissez faire attitudes, the modern welfare State plays an active role. The law and practice relating to labour is the story of this battle. In this context the study of labour law is not confined to mastering of the rules and regulations relating to employment of the work force. The wings spread wider. It has its focus on the societal impulses on and state reactions to, the complex socio-economic, human and political problems arising out of the constant conflicts between different classes.
Course outcome	**CO1** Students will know the development and the judicial setup of Labour Laws. They will learn the salient features of welfare and wage Legislations also to integrate the knowledge of Labour Law in General HRD Practice. **CO2** Students will learn the laws relating to Industrial Relations, Social Security and Working conditions and also learn the enquiry procedural and industrial discipline.

Mapping between CO's with PSOs		PSO1	PSO2	PSO3	PSO4	PSO5
	CO1					

	CO2
Course Content	1. **Historical Perspectives on Labour** 1.1 Labour through the ages - slave labour - guild system - division of labour on caste basis - labour during fendal days. 1.2 Colonical labour law and policy 1.3 Labour - Capital conflicts : exploitation of labour - profit motive, poor bargaining power, poor working conditions - unorganized labour – bonded labour - surplus labour - division of labour and super specialization - lack of alternative employment 1.4 Theories of Labour and Surplus value 1.5 From Laissez - faire to welfarism to globalisation : transition from exploitation to protection and from contract to status - changing perspectives on labour 2. **Trade Unionism** 2.1 Labour movement as a counter measure to exploitation - history of trade union movement in India 2.2 Right to trade union as part of human right - freedom of association -international norms and Indian Constitution 2.3 Legal control and protection of trade union - registration - amalgamation -rights, liabilities and dissolution 2.4 Problems : multiplicity of unions - over politicization - intra union and inter union rivalry - outside leadership - closed shop and union shop – recognition of unions 3. **Collective Bargaining** 3.1 Concept of collective bargaining - international norms - conditions precedent merits and demerits 3.2 Bargaining process - negotiation, pressurization strike, lockout, go slow, work to rule, gherao, bandh and hartal 3.3 Structure of bargaining : Plant, industry, national levels 3.4 Durations and enforcement of bipartite agreement 3.5 Reforms in law 4. **State Regulation of Industrial Relations** 4.1 Theoretical foundations : Social justice, labour welfare, public interest, productivity, industrial peace and development, price control 4.2 Method of regulation - recognition of mutual agreement - assistance to bipartite settlement, conciliation, voluntary arbitration, formulation of standing orders - State prescription of machinery, reference for adjudication (political overtones) the adjudicatory mechanisms (how do they differ from courts?) -Award and its binding nature - judicial review of awards - State prescription of standards in layoff, strike, lockout, retrenchment, closure and transfer of undertakings. 4.3 The Conceptual conundrum : industry, industrial dispute, workmen

	4.4 Unfair labour practices **5. Discipline in Industry : Restraints on managerial prerogative** 5.1 Doctrine of hire and fire - history of management's prerogative 5.2 Fairness in disciplinary process - punishment for misconduct - meaning of misconduct - the right to know - charge sheet 5.3 The right to defend : domestic inquiry, notice, evidence, cross examination, representation, unbiased inquiry officer and reasoned decision 5.4 Pre-natal (permission) and postnatal (approval) control during pendency of proceedings (section-33 of the I. D. Act) **6. Protection of the Weaker Sectors of Labour** 6.1 Constitutional dimensions of labour standards 6.2 Tribal Labour : need for regulation 6.3 Bonded Labour : Socio-economic programmes for rehabilitation 6.4 Contract Labour : regulation 6.5 Child Labour : Prohibition & Regulation 6.6 Women Labour : Maternity Benefit equal remuneration - protective provisions for women
Reference books	– Seth D.D.: Commentaries on Industrial Disputes Act 1947 (1998), Law Publishing House, Allahabad. – Srivastava K.D. : Disciplinary Action against Industrial Employees and its Remedies (1990), eastern, Lucknow. – V.V. Girl : Labour Problems in Indian Industry Chs. 1 and 15, (1972) – Indian Law Institute: Labour Law and Labour Relations (1987) (1982) Cochin University Law Review, Vol. 6 pp. 153-210. – Report of the National Commission on Labour – O.P. Malhotra: The Law of Industrial Dispute (1998), Universal, Delhi. – J.G. Riddal : The Law of Industrial Relations – R.R. Singh : Labour Economics – ILO Conventions and Recommendations – ILO Collective Bargaining – Gillian S. Morris and Timothy J. Archer : Collective Labour Law (2000) Oxford – Nick Humphriey : Trade Union Law (1997) Blackstone – John Bowers and Simon Hentyball : Text book on Labour Law (1998), Blackstone – Stephen Dery and Richard Mitchell : Employment Relations Individualisation and Union Exclusion (1999), Blackstone – Roger Blanpain, Chris Engels (eds.) : Comparative Labour Law and Industrial – Relations in Industrialised Market Economics (1999), Kluver – ILO Collective Bargaining in Industrialised Market Economces – Mary Sur : Collective Bargaining – R.W. Rideout : Principles of Labour Law – Ottokahn Freund : Labour and the Law – Russel A. Smithetal : Collective Bargaining and Labour Arbitration (1970)

	– Robert A. Goman : Basic Text on Labour Law – Chaturvedi R.G.: Law and Procedure of Departmental Enquiries and Disciplinary Actions (1997) Government of India : Agricultural Labour Enquiry – Government of India : Report on the Second Agricultural Enquiry : Report on the Third Agricultural Enquiry – Report of the National Commission on Rural Labour (1991) Govt. of India, Ministry of Labour – P.L. Malik : Labour and Industrial Law, Vol-I and II – ILO Conventions and Recommendations
Teaching Methodology	Lecture method, discussion method and PPT presentation
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Course: 2005000505050001: Taxation I: Direct Taxes

Course Code	2005000505050001
Course Title	**Taxation I : Direct Taxes**
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	September 2013
Purpose of course	To acquire the knowledge of taxation laws
Course objective	Power to tax had been described as the power to destroy. This idea is being floated often whenever the state introduces a new tax. Is this true? Is it not necessary that in order to raise revenue and place the economy on solid foundation, the taxing power should be conferred on the state? The power to tax shall not go unregulated. In the context of a federal structure the distribution of the taxing powers assumes added significance. Obviously, a study of the constitutional framework on taxation becomes important. Along with this, an analysis of the different laws enacted in exercise of these powers with their safeguards and remedies sheds light on the mechanics of the taxation by the Union and the States.
Course outcome	**CO1**- Understand the application of business Knowledge in both theoretical and practical aspects.

	CO2- Determine the procedures and schedules to be followed on preparing financial statements of Companies. **CO3**- File Income tax return and compute the tax liability of individuals **CO4**- Develop proficiency in the management of an organization **CO5**- Attain skills in conducting business transactions online **CO6** - Learn the basic skills for the effective utilization of funds **CO7** - Follow the ethics pertaining to business transactions
Mapping between CO's with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					
CO4					
CO5					
CO6					
CO7					

Course Content	Unit 1 Income Tax 1.1 Basic concepts - income - total income, income not included in total income deemed income - clubbing of income 1.2 Assesses - person 1.3 Tax planning and tax avoidance Black money - taxation of agricultural income. 1.4 chargeable income - heads of income - salaries - income from the house property - income from business or profession - capital gains - income from other sources - deduction, relief, exemptions - rate of income tax 1.5 Income tax authorities - power and functions 1.6 Offences and Penal Sections. 1.7 Settlement of grievances
Reference books	1. Remesh Sharma : **Supreme Court on Direct Taxes** (1998), Bharat Law House, New Delhi. 2. A. C. Sampath Iyenger : **Law of Income Tax** (1998), Bharat Law House, New Delhi 3. Diwan B.K. and Sanjay Mehttani : **Formation, Taxation and Assessment Charitable and Religious Trusts** (1999), Bharat Law House, New Delhi. 4. Kanga and Palkiwala : **The Law and Practice of Income Tax** (1999), Wadhwa, Nagpur 5. K. Parameswaram : **Power of Taxation Under the Constitution** (1987), Eastern, Lucknow 6. V. Ramachandran & T.A. Ramakrishnan (eds.) **A.N. Aiver's Indian Tax Laws** (2000) Company Law Institute of India Pvt. Ltd. Chennai. 7. S. Bhattacharya and H.R. Garg : **Handbook of Direct Taxes** (1990), Eastern Law House, Calcutta. 8. Law and Practice relation to Central Sales Tax Act : Govt. Publication 9. Singhania : **Direct Tacxs Law and Practice**

	10. Sundaram : **Law of Income Tax in India** 11. R.R. Gupta : **Income Tax Act and Practice** 12. K. Chaturvedi and S. M. Pithisaria : **Income Tax Law** 13. V. P. Gandhi : **Some Aspects of Income Tax Structure : An Economy Analysis** 14. T. Mathew : **The Tax Policy** 15. H. M. Seervai : **Constitutional Law of India** 16. M. P. Jain : **Indian Constitutional Law**
Teaching Methodology	Lecture method, discussion method and PPT presentation.
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Semester 6								
Course Code	**Title**	**Teaching per week**		**Course Credit**	**University Examination**		**Internal Marks**	**Total Marks**
		Theory	Practical		Duration	Marks		
2105000506010001	Property Law	6	0	6	3hrs	70	30	100
2105000506020001	Family Law - II	6	0	6	3hrs	70	30	100
2105000506030001	Public International Law	6	0	6	3hrs	70	30	100
2105000506040001	Labour Law - II	6	0	6	3hrs	70	30	100
2105000506050001	Environmental Law	6	0	6	3hrs	70	30	100

Course: 2105000506010001: Property Law

Course Code	2105000506010001
Course Title	Property Law
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014

<table>
<tr><td>Purpose of course</td><td>The focus of this course is on the study of the concept of 'Property', the 'nature of property rights 'and the general principles governing the transfer of property. A detailed study of the substantive law relating to particular transfers, such as sale, mortgage, lease, exchange, gift and actionable claims will also be undertaken. The course also includes an exposure into the concept of trust.</td></tr>
<tr><td>Course objective</td><td>The course on property conventionally deals with the Transfer of Property Act 1882. More than a century has elapsed since the passing of the Act and far-reaching changes have occurred in the field in property laws owing to altered social conditions. While archaic feudal rules enacted by the colonial administration like the rule against perpetuities find a place in the Act, the post-independence development relating to control and use of agricultural land do not find a place. The obsolescence of the Transfer of Property Act, can be best illustrated by citing the provisions relating to leases on immovable properties. The provisions relating to leases under the Act are not applicable to agricultural leases; and even with respect to urban immovable property, the provisions are not applicable to the most dominant type, namely, housing under the rent control legislation. Thus the existing syllabus does not touch upon agrarian property relations, which affect the vast majority of people or aspects relating to intellectual property which are important in the context of development. The proposed syllabus attempts at overcoming these deficiencies and imbalances.</td></tr>
<tr><td>Course outcome</td><td>CO1 Skill to understand the concept of intellectual property rights.
CO2 Develops procedural knowledge to Legal System and solving the problem relating to intellectual property rights.
CO3 Skill to pursue the professional programs in Company Secretary ship, Law, Business(MBA), International Affairs, Public Administration and Other fields.</td></tr>
<tr><td>Mapping between CO's with PSOs</td><td><table><tr><th></th><th>PSO1</th><th>PSO2</th><th>PSO3</th><th>PSO4</th><th>PSO5</th></tr><tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>Course Content</td><td>1. Jurisprudential Contours of Property
1.1 Concept - meaning - kinds of property - new property - Government largesse
1.2 Kinds of Property - movable and immovable property intellectual property - copyright - patents and designs - trademarks, geographical indications etc.
1.3 Possessional ownership as man-property relationship - finder of goods
2. Resources, Use, Patterns and Concepts in India: Who owns land? Sovereign or Subject
2.1 Pre-Colonial position - religious and tribal approaches - position under colonial administration - permanent settlement-</td></tr>
</table>

	ryotwari settlement - Evotution of Doctrine of Eminent Domain - tenancies - revenue administration - acquisition and requisition of immovable property including land - concept of public purpose - process, powers, rights, exemption and release of acquisitioning and requisiting of immovable property. 2.2 Forms of control of Urban Property - Housing - shelter - slums and its clearance and development - housing policy - rent control - Urban development and planning - authority - powers 2.3 Post-Constitutional Development on Agricultural Land - land to tiller – land ceiling legislations - State enactments prohibiting alienation of land by tribals to non-tribals 3. **Recording of Property Rights** 3.1 Registration of documents affecting property relations exemptions benefits 3.2 Recording of rights in agricultural land 3.3 Investigation of title to property 3.4 Law relating to stamp duties - liability of instruments to duty - duties by whom payable. 3.5 Effect of not duly stamping instruments, inadmissibility in evidence, impounding of instruments. 4. **Law Relating to Transfer of Property - Transfer of Property Act,1882** 4.1 General Principles of transfer of property 4.2 Transfer of property - definitions - transfers by acts of parties 4.3 Transfer of movable property 4.4 Doctrine of Election 4.5 Doctrine of Apportionment 4.6 Transfer of immovable property - transfer by co-owners, by ostensible owners- rights - fraudulent transfer - part performance 5. **Law relating to Transfer of Property-II** 5.1 Sale - essentials, definition, rights and liabilities of seller and buyer - marshalling by subsequent purchaser, provision by court for encumbrances and sale freed there from 5.2 Mortgages and Charges 5.2.1 Under the Transfer of Property Act - definitions - lands rights and liabilities of mortgagor and mortgagee - redemption - clog on redemption - marshalling and contribution - foreclosure and sale 5.2.2 To a land mortgage bank, land development bank, powers and functions. 5.3 Leases-definitions - essentials - rights and liabilities of lessor and lessee 5.4 Exchanges-definitions - rights and liabilities of parties - exchange of money 5.5 Gifts - definitions - how effected-Essential requirements, kinds of gift -

	onerous gift - universal donee - suspension and revocation of gift - gift of existing and future property - donatio mortis causa and Muhammadan Law 5.6 Transfer of actionable claims - definition - notice - transfer of actionable claims - solvency of debtor - liability of transferee of actionable claim - mortgaged debt, assignment of rights under policy of insurance against fire - marine insurance - incapacity of officers connected with Courts of Justice, saving of negotiable instruments etc. 6. **Easements** 6.1 Meaning - nature - essentials - characteristics 6.2 Kinds - creation suspension and extinction of easements rights 6.3 Easement rights : way, air, light, support etc. 6.4 Riparian rights 6.5 Licenses - meaning, elements, grant of license and its revocation
Reference books	1. Mulla : Transfer of Property Act 2. Subbarao : Transfer of Property Act 3. B. Sivaramayya : Inequatities and the Law (1997) Eastern 4. B.H. Barden-Powell : Land Systems in British India, Vols 1 to 3, Oxford 5. V.P. Sarathy : Transfer of Property 6. P.C. Sen : The General Principles of Hindu Jurisprudence 7. T.R. Desai : The Indian Easements Act 8. B.B. Katiyar : Easements and Licenses 9. Sanjiva Rao : The Indian Easements Act. 10. Yogesh Desai and J.H. Vasoya : The Transfer of Property Act, 11. Justice Arijit Prasayat : Dr. Hari Singh Gour's Commentary on the Transfer of Property Act, 12. Soli Sorabjee : Dinshaw J. Vakils Commentaries on the Transfer of Property Act, Wadhwa 13. M. Krishnaswami : Law of Adverse Possession, Lexis Nexis
Teaching Methodology	Lecture method, discussion method and PPT presentation
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Course: 2105000506020001: Family Law - II

Course Code	2105000506020001
Course Title	Family Law - II

Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	The course is designed in such a way that it covers legal aspects of family law like Maintenance after separation, Adoption and Guardianship and statutory provisions relating to them. It also discusses the most important concept of Hindu Law that is of joint Hindu Family and partition and the concept of Karta. The course covers the issue relating to religious endowments, waqf and pre-emption and their social, religious and statutory provisions.
Course objective	The course structure is designed mainly with three objectives in view. One is to provide adequate sociological perspectives so that the basic concepts relating to family are expounded in their social setting. The next objective is to give an overview of some of the current problems arising out of the foundational inequalities writ large in the various family concepts. The third objective is to view family law not merely as a separate system of personal laws based upon religions but as the one cutting across the religious lines and eventually enabling us to fulfill the constitutional directive of uniform civil code. Such a restructuring would make the study of familial relations more meaningful. The Bar Council of India has suggested that the Family Law is to be taught in two courses while the CDC had prepared the syllabus for a comprehensive full course on Family Law. The CDC syllabi being elaborate embracing various aspects of Family Law, each University Board of Studies has the discretion to divide the CDC paper on Family Law into two.
Course outcome	**CO1** This course shall contain law relating to joint family, inheritance and succession, child and the family, family courts. **CO2** The course concerns itself with the sources, schools, institutions, succession, adoption and maintenance etc. In addition, the students have to familiarize themselves with the provisions of the Indian Succession Act. **CO3** The knowledge of family laws is important for lawyers. This course is designed to endow the students with knowledge of both the codified and uncodified portions of Mohemmedan Law. **CO4** Students studying family law learn about concepts like Succession, Inheritance. **CO5** Family law examines and compares personal laws. **CO6** Students will gain skills of thinking, analysis, written and verbal presentation of ideas of argument.

Mapping between CO's with PSOs		PSO1	PSO2	PSO3	PSO4	PSO5
	CO1					

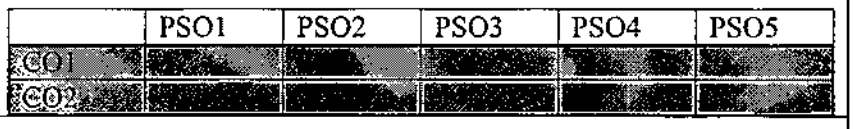
	CO2	
	CO3	
	CO4	
	CO5	
	CO6	
Course Content		**1.Joint Family** 1.1 Mitakshara joint family - mitakshara co-parcenery formation and incidents -Property under Mitakshara law - separate property and coparcenary property 1.2 Dayabhaga co-parcenery - formation and incidents - property under Dayabhaga law 1.3 Karta of joint family - position, powers, privileges and obligations 1.4 Alienation of property - separate and coparcenary 1.5 Debts - doctrine of pious obligations and antecedent debts 1.6 Partition and re-union 1.7 Joint Hindu Family as a social security institution and impact of Hindu Gains Of Learning Act and various taxation laws on it. 1.8 Matrilineal joint family **2. Inheritance and Succession: Hindus** 2.1 Hindus - historical perspective of traditional Hindu Law as a background to The study of Hindu Succession Act, 1956 2.1.1 Succession to property of a Hindu male dying intestate 2.1.2 Succession to property of a Hindu female dying intestate 2.2 Devolution of interest in Mitakshara co-parcenery with reference to the Hindu Succession Act. 2.3 General rules of succession and disqualification relating to succession 2.4 Marumakkatayam and Aliyasantana laws governing people living in Travancore Cochin and the district of Malabar and South Kanara **3. Inheritance and Succession: Muslims** 3.1 General rules of succession and exclusion from succession 3.2Classification of heirs - under Hanafi and Ithna Asharia Schools and their Shares and distribution of property **4. Inheritance and Succession** 4.1 Christians, Parsis and Jews. 4.2 Heirs and their shares and distribution of property under the Indian Succession Act, 1925 **5. Child and the Family** 5.1 Legitimacy 5.2 Adoption 5.3 Custody, maintenance and education

	5.4 Guardianship and parental rights - principle of welfare of the child **6. Establishment of Family Courts** 6.1 Constitution, powers, functions and jurisdiction 6.2 Administration of justice conducive to reconciliation and sorting out family Problems
Reference books	Paras Diwan: Law of Intestate and Testamentary Succession, Universal - Basu N.D.: Law of Succession (2000), Universal - Paras Diwan: Law of Adoption, Maintenance, Guardianship and Custody (2000), Universal - V.V. Raghavan (ed.): Paruck's Indian Succession Act, 1925 (1977) - Virendra Kumar: Alimony and Maintenance in the Light of Changing Concept of Marriage and Divorce (1978) Please refer the Select Bibliography provided for Family Law-I. The students should consult relevant volumes of the Annual Survey of Indian Law published by the Indian Law Institute, New Delhi.
Teaching Methodology	Lecture method, Discussion method, Through power point, Through Book, Journals, Bare Act etc, Group discussion methods, Assignment method
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Course: 2005000505040001: Labour Law-II

Course Code	2005000505040001
Course Title	Labour Law-II
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	To gain knowledge of various legislation enacted of Labour related laws. The student should get an insight into the mechanics of socio-legal control of labour relations and should be aware of the history, the

	present norms, the emerging areas and possible future techniques of labour jurisprudence.
Course objective	Protection of labour is a constitutional mandate. A constitution inspired by the vision of social justice is committed to the cause of upliftment of labour. Well balanced industrial development leads to increased productivity which in turn is a factor of national progress. Labour makes significant contribution in this respect. Is labour merely a commodity? Is it only a factor in production? There may be different approaches towards this question. One fact is certain. Today's labour is engaged in a battle for position of honour and status equal with management. The law and practice relating to labour is the story of this battle. In this context, the study of labour law is not to be confined to mastering of the rules and regulations relating to the employment of the work force. Its wings spread wider. It has its aim on the societal impulses on, and state reactions to, the complex socio-economic, human and political problems arising out of the constant conflicts between different classes.
Course outcome	**CO1** Students will know the development and the judicial setup of Labour Laws. They will learn the salient features of welfare and wage Legislations also to integrate the knowledge of Labour Law in General HRD Practice. **CO2** Students will learn the laws relating to Industrial Relations, Social Security and Working conditions and also learn the enquiry procedural and industrial discipline.
Mapping between CO's with PSOs	
Course Content	**Factories Act, 1948** — **20 marks** **Employees State Insurance Act, 1948** — **10 marks** **Employees Provident Fund (Miscellaneous Provisions Act), 1952** — **10 marks** **Minimum wages Act, 1984** **Payment of wages Act, 1936** — **15 marks** **Payment of Bonus Act, 1965** **Payment of Gratuity Act, 1972** **Workmen's' Compensation Act, 1923** — **15 marks** **Total** — **70 marks** **Statutory Materials** 1. Factories Act, 1948 2. Employees' State Insurance Act, 1948 3. Employees Provident Fund (Miscellaneous) Provisions Act, 1952 Minimum Wages Act, 1984 4. Payment of Wages Act, 1936 5. Payment of Bonus Act, 1965

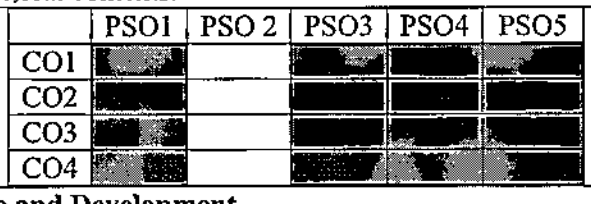
	6. Payment of Gratuity Act, 1972 7. Workmen's Compensation Act, 1923 1. **Remuneration for Labour** 1.1 Theories of wages : marginal productivity, subsistence, wages, fund, supply and demand, residual claimant, standard of living 1.2 Concept of wages : minimum wages, fair wages, living wages, need based minimum wages 1.3 Components of wages : dearness allowance, principle of fixation 1.4 Disparity in wages in different sectors - need for rationalisation and national approach 1.5 Wage determining process : modes and modalities - unilateral fixation by employer - bilaternal fixation - conciliation, arbitration and adjudication - Wage Board and Pay Commission - Principles of wage fixation 1.6 Concept of bonus - computation of bonus 1.7 Protection of Wages : nonpayment, delayed payment, unauthorized deductions remedial measures 2. **Health and Safety** 2.1 Obligations for health and safety of workmen - legislative controls - factories, mines and plantations 2.2 Employer's Liability 2.3 Workmen's compensation 2.4 Employees State Insurance 2.5 Liability for hazardous and inherently dangerous industries – environmental protection 3. **Labour Welfare** 3.1 Welfare provided by the employers and through bipartite agreements and by statutory prescription 3.2 Provident Fund and Family pension 3.3 Gratuity 3.4 Insurance 3.5 Interstate migrant workers regulation of employment and conditions of service 3.6 Regulation of working hours : Statutory controls 4. **Social Security Law** 4.1 Meaning - distinction between labour Welfare and Social Security 4.2 Modality : Social prescription, Social assistance and social assurance 4.3 Labour Social security as part of the general social security in the welfare state 4.4 Origin and development- international norm on social security

	4.5 Constitutional perspectives fundamental right-realization of the rights through meaningful social security measures - right to life wider dimensions right to adequate means of livelihood, free legal aid, public assistance in cases of unemployment, old age, sickness and disablement, maternity relief. 4.6 From compensation to insurance - judicial interpretation of the expression "arising out of and in the course of employment" - Employees State insurance benefits - improvement over workmen's compensation - social security and role of trade unions - funding - benefits and beneficiaries - social security clauses in collective agreements.
Reference books	- John Bowers and Simon Honeyball : Text Book on Labour Law (1996), Blackstone, London - Srivastava K.D.: Commentaries on Payment of Wages Act 1936 (1998), Eastern, Lucknow. - Srivastava K.D. : Commentaries on Minimum Wages Act 1948 (1995), Eastern, Lucknow - Rao S.B.: Law and practice on Minimum Wages (1999), Law Publishing House, Allahabad. - Srivastava K.D.: Commentaries on Factories Act 1948 (2000), Eastern, Lucknow. - R.C. Saxena : Labour Problems and Social Welfare Chapters 1, 5 and 6 (1974) - V.V. Girl : Labour Problems in Indian Industry Chs. 1 and 15, (1972) - Indian Law Institute : Labour Law and Labour Relations (1987) -1982) Cochin University Law Review, Vol. 6 pp. 153-210. - Report of the National Commission on Labour, - S.C. Srivastava: Social Security and Labour Law (1985), Universal, Delhi. - S.C. Srivastava: Commentary on the Factories Act 1948 (1999) Universal, Delhi. - ILO Conventions and Recommendations - R.N. Chaudhary : Commentary on the Workmen's Compensation Act, 1923 (2000), Orient - H.H. Saharay : Industrial and Labour Laws in India (1987) - Harry, Calvert : Social Security Laws - Munkman : Employer's Liability (1985) - V.R. Bhattacharya : Some Aspects of Social Security Measures in India - P.L. Malik ; Labour and Industrial Law Vol-I and Vol-II
Teaching Methodology	Lecture method, discussion method and PPT presentation method
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks

	External University exams	70 marks
	Total	100 marks

Course: 2105000506030001: Public International Law

Course Code	2105000506030001
Course Title	Public International Law
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	September 2013
Purpose of course	The purpose of this paper is to orient law students to a whole range of contemporary concerns in international law and world affairs.
Course objective	To orient law students to a whole range of contemporary concerns in international law and world affairs.
Course outcome	**CO1:** To develop a knowledge of the nature of public international law and the structure of the international legal system. **CO2:** To define and apply the basic elements of public international law - its sources and subjects, the recognition and jurisdiction of States in international law and principles of State responsibility. **CO3:** To develop a knowledge of several key areas of 'public international law' including the law surrounding the use of force and human rights and treaty interpretation. **CO4:** Critically examine the operation and application of international law in practical contexts.
Mapping between CO's with PSOs	
Course Content	1. **Nature and Development** 1.1 Historical Development - origins of Western nation state systems – interstate relation during colonization 1.2 Expanding legal scope of international concern - Modern theories and interpretations 1.3 Sources of international law - customs, treaties, general principles of law and equity - other sources. 1.4 Basic principles of international law - sovereignty and equality of state - nonintervention - co-operation - non use of force - peaceful settlement of disputes. 2. **International Law and Municipal Law** 2.1 Theories of relationships 2.2 The role of municipal rules in international law. 2.3 International Law before municipal courts

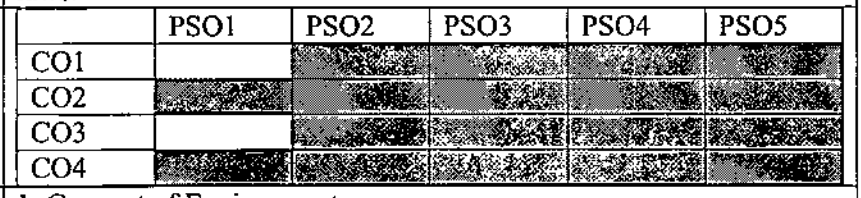
	3. **State as subject of international law** 3.1 Legal personality 3.2 State - Creation, recognition, fundamental rights of States - individuals -international organizations - acquisition, nature and consequences of legal personality. 4. **Territory and Jurisdiction of State** 4.1 Concept of territory in international law - territorial sovereignty - creation of new states and title to territory, acquisition of additional territory - territorial integrity and self-determination - common heritage of mankind - leases and servitudes - Law of Air and Outer Space - Law of Sea - International Environment Law - International Criminal Law - International Humanitarian and Refugee Law - Nuclear proliferation and Disarmament. 4.2 Jurisdiction - Principles of domestic jurisdiction - immunities and privilege from jurisdiction. 4.3 State Responsibility - nature of responsibility - question of fault – invocation and consequences - aliens - expropriation of foreign property. 4.4 State succession - continuity and succession 4.5 Treaties - law making of treaties - interpretation - application amendment -invalidity, termination and suspension - dispute settlement - treaties between states and international organisations. 5. **Settlement of Disputes** 5.1 Peaceful settlements - diplomatic methods - negotiations - etc. 5.2 Use of force - law and force - just war - intervention – terrorism and international law 6. **United Nations and International Institutions** 6.1 The UN System - Security Council, General Assembly, other principal organs. 6.2 Institutions - institutions of universal and regional character 6.3 The International Court of Justice - organisation - jurisdiction.
Reference books	1. Malcolm N. Shaw : International Law (2008), Cambridge 2. S.K. Varma : Public International Law (1988) PHI 3. M.P. Tandon : Public International Law 4. Paras Diwan : Public International Law 5. Robert Jennings and Arthur Watts KCMGQC (eds.) : Oppenheim's International Law (2008) Oxford 6. The Students shall consult journals published by Indian Law Institute, New Delhi and Indian Society of International Law, New Delhi. 7. The Students shall consult some useful international law websites published in Malcolm N. Shaw : International Law (2008) Cambridge, pp.1332-1341
Teaching Methodology	The Lecture method as it is one of the most important ways of teaching through which a teacher develops an understanding of the subject to its core by explaining a concept through examples, thereby making it a student centric approach.

	The Socratic method of teaching which gives an opportunity to the students to ask questions to the teachers would be emphasized by the teachers. Similarly, a variety of approaches has been adopted to achieve the objectives of the programme with the use of audio-visual aids, charts, projectors, power point presentations, LCD projectors and all other tools to disseminate knowledge to the students.
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Course: 2105000506050001: Environmental Law

Course Code	2105000506050001
Course Title	Environmental Law
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	To acquire the knowledge of various environmental enactments in detail.
Course objective	The Environmental law programme, in contrast to other law curricula, has certain characteristics which make it unique and is one of the best instruments for breaking the ice of colonial legal education. Its uniqueness lies in the fact that the problems it raises do not relate merely to specific individuals but about such matters as national development, industrial policy, policies concerning natural resources, injustice to communities, inter-generational equity and prevention of pollution. All these issues relate to problematic about construction of a just, humane and healthy society. Secondly, environmental law necessarily demands an inter-disciplinary approach. Thirdly, uniqueness of the subject is borne out by the new epistemological outlook which ecology-related knowledge has brought about in recent times. The development of ecological knowledge has necessitated an overall change not only in managerial studies but also in socio-legal explorations. This approach to the growing dimensions of environmental law is essential.

Course outcome	**CO1** The primary learning outcome is to sensitize the students towards human activities that adversely affect the environment and the need for regulation of such activities. **CO2** Students will develop a thorough understanding of practice and procedure followed by various environmental law enforcing agencies/bodies. **CO3** Students will be able to pursue environmental litigation before the National Green Tribunal and assist the Tribunal as a researcher or in any other capacity. **CO4** Students will be able to assist industries and projects in obtaining environmental clearance and compliances with other environmental laws.
Mapping between CO's with PSOs	
Course Content	1. Concept of Environment 1.1 Environment - meaning - contents - Ecological Cycles and Interdependence National Welfare, National Resources and their Utilization - Alternative Technologies in Housing, Energy generation. 1.2 Types of Environmental Laws. 1.2.1 Law of Acquisition - land, forest, ores, fuels 1.2.2 Laws for Production and Planning - Tenancy Law, Land reforms, land development, industrial and factory laws Atomic energy law etc. 1.2.3 Laws for Distribution-Essential commodities, fuel, Cattle Use, Land and Forest Use Laws, Wildlife ect. 1.2.4 Laws for Conservation - conservation of forests, wildlife, energies, Protection against pollution Protections against hazardous substances laws. 1.3 Functions of Environmental Laws. 1.3.1 Primary Protective Laws (a) For Human beings namely laws pertaining to Water, Air, Noise Nuclear Radiation, Toxic Substances. (b) For Non human beings namely wildlife, marine life, major forests, minor forest etc. 1.3.2 Primary Planning Laws (a) For production - irrigation, mining, grazing, catchment areas, wetland estuaries. (b) For distributions-namely land ceiling, slums, housing, parks, sanctuaries, Biospheres etc. 1.3.3 Secondary Laws (a) Pertaining to administration and functioning like Water Boards, Pollution Control Boards etc.

	(b) Law relating to administration - ministry, forest departments. (c) Laws relating to lower courts (d) Laws relating to collection dissemination and publication of data 2. Legal Control : Historical Perspectives 2.1 Indian tradition : Dharma 2.2 British Raj - industrial development and exploitation of nature 2.3 Penal and Procedural law 2.3.1 Indian Penal Code - Nuisance etc. 2.3.2 Code of Criminal Procedure Offences against Public Nuisance 2.3.3 Factories Act - hazardous process 2.3.4 Provisions relating to Public Health and Hygiene. 3. Constitutional Perspectives and Issues of Distributive Justice 3.1 Fundamental Rights, Directive Principles and Fundamental Duties – Articles 14, 15(2)(b), 29, 39(a)(b)(c)(e)(f), 47, 48A, 49, 51-A(9), 32 and 226. 3.2 Entries in Union List and Concurrent List of Schedule-VII Union List : Entries 6,52,56 etc. Concurrent List : Entries 17, 17A, 17B, 18, 20. 3.3 Judicial Approach and Social Action Litigations 3.4 International Regime : International Conventions and Treaties - Stockholm, Rio, Johannesbug, Bio-Diversity, and legal controls, control of eco-friendly experimentation on animals, plants, seeds and micro organism, UN Declaration on Right to Development, Wetlands, Green House Effect Ozone Depletion 3.5 Emerging Principles 3.5.1 Polluter Pays : Public Liability Insurance 3.5.2 Precautionary Principle 3.5.3 Public Trust Doctrine 3.5.4 Sustainable Development - Environment vs. Development 4. Legislations for the Protection of Environment 4.1 Water and Air Pollution 4.1.1 Meaning and Standards - Procedures 4.1.2 Culprits and Victims 4.1.3 Offences and Penalties 4.1.4 Judicial Approach 4.2 Noise Pollution- Legal Control-Judicial Approach Permissible and impermissible noise. 4.3 Environment Protection 4.3.1 Protection Agencies : Power and functions 4.3.2 Protection : means and sanctions 4.3.3 Emerging Protection through delegated legislation 4.3.4 Hazardous Waste and Biomedical Waste 4.3.5 Genetic Engineering 4.3.6 Disaster Emergency Preparedness

	4.3.7 Environment Impact Assessment 4.3.8 Coastal Zone Management 4.3.9 Environmental audit and eco mark 4.3.10 Judiciary: Complex problems in administration of environmental justice. 5. Forest and Greenery and Town and Country Planning 5.1 Forest Conservation and Greenery Conservation Laws. 5.2 Conservation agencies 5.3 Prior approval and non forest purpose 5.4 Symbiotic relationship and tribal people 5.5 Denudation of forest - judicial approach 5.6 Wildlife - Conservation, Sanctuaries, national parks - licensing of zoos and parks - State's monopoly in the sale of wildlife and wildlife articles 5.7 Offences against wildlife 5.8 Town Planning and Country Planning - Law enforcement and constraint- Planning and Management Policies. Statutory Materials -Indian Constitution [Articles: 14,15,15(2)(b),19(c),21,31C,32,38,39,42,47,48,49,51, 51-A(9)] - Indian Penal Code [Ss 188, 268, 269, 272, 277, 288, 290, 430] - Code of Criminal Procedure, 1973 [Ss 133, 141) - Factories Act, 1948 [Chapter IV-A] - Indian Easement Act, 1882 [Ss 2,7,15,28(d)] - The Water (Prevention and Control of Pollution) Act, 1974 - The Air (Prevention and Control of Pollution) Act, 1981 - The Environment Protection Act, 1986 - The Public Liability Insurance Act, 1991 - The National Environment Tribunal Act, 1995 - The Indian Forests Act, 1927 [Ss. 26,32(F)] - The Indian Forest (Gujarat Unification and Amendment) Act, 1960 - Private Forest (Acquisition) Act, 1972 - Wildlife Protection Act, 1972 - Wasteland (Claims) Act, 1983
Reference books	-A Rosencranz : Environmental Law and Policy in India -Chhatrapati Singh : Common Property and Common Poverty, 1985 -R.B. Singh and Suresh Misra : Environment Law in India -S.N. Jain (ed). : Pollution Control and the Law -Kailash Thakur : Environment Protection Law and Policy in India -Richard L. Rivesz (eds).: Environment Law, the Economy and Sustainable Development (2000), Cambridge -Christopher D. Stone : Should Trees Have Standing and Other Essays on Law, Morals and Environment (1996), Oceana -A Agarwal (ed). : The State of India's Environment : The Second Citizens Report -P. Leelakrishnan : Law and Environment: The Environment Law in India -R. Allen : How to Save the World, Strategy for World Conservation

	-Sanjay Upadhyaya and Videh Upadhyaya : Water Laws, Air Laws and the Environment Law, Vol. 1 and 2. -Indian Law Institute: Environment Protection: An Agenda for Implementation World Commission on Environment and Development: Our Common Future (1987), Oxford. -Tiwari Committee Report for Recommending Legislative Measures and Administrative Machinery for Ensuring Environmental Protection (1980). -Prithvish Nag : Essays on Environment and Resources - Some Regional Issues (1991) -Lal's Commentaries on Water Pollution, Air Pollution and Environment (Protection) Laws. -S.C. Shastri : Environment Law (2008), Eastern -Centre for Science and Environment - The State of India's Environment 1982, 1984-85 and 1999-2000. -Sumeet Malik : Environment Law (2008), Eastern -Stuart Bell and Donald Mc Gilliuary: Environmental Law (7th edn.), Oxford - Elli Louka : International Environmental Law - Fairness, Effectiveness and World order (2006), Cambridge - B.H. Baden Powell : The Land System of India (Vols. 1, 2 & 3) : Manual of Jurisprudence for Forest Officers (1882) - E.P. Stebking : Forests of India - U. Baxi : The Bhopal Case (Trilogy) - Jayal Bandopadhyaya and Singh (ed). : India's Environment- Crises and Responses - R. Guha : "Forestry in British India" in 18 EPW, No.44-45 (1983) - D. Sharma : India's Nuclear Estate
Teaching Methodology	Lecture method, discussion method and PPT presentation
Evaluation Method	Internal Assessment

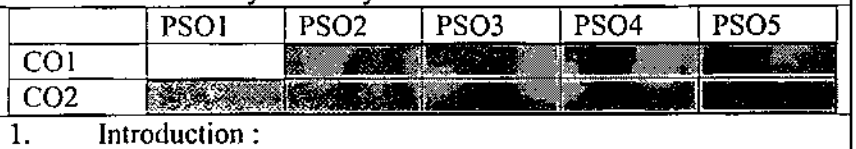
Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Semester 7								
Course Code	**Title**	**Teaching per week**		**Course Credit**	**University Examination**		**Internal Marks**	**Total Marks**
		Theory	Practical		Duration	Marks		
4544	Civil Procedure Code and	6	0	6	3hrs	70	30	100

	Limitation Act							
4545	Banking Law	6	0	6	3hrs	70	30	100
4546	Taxation II : Indirect Taxes	6	0	6	3hrs	70	30	100
4547	Intellectual Property Law I	6	0	6	3hrs	70	30	100
4548	Law of Equity and Trust	6	0	6	3hrs	70	30	100

Course: 4544: Civil Procedure Code and Limitation Act

Course Code	4544
Course Title	**Civil Procedure Code and Limitation Act**
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	To develop the conceptual clarity of the procedure code and to develop the advocacy skills
Course objective	Civil Procedure Code is a subject of daily use by the courts and lawyers and a student cannot afford to have scant knowledge of civil procedure when he goes out to practice as a lawyer. True that it is through experience one gets expert knowledge of civil procedure. However, it is necessary to have good grounding in the subject before one enters the profession. While the substantive law determines the rights of parties, procedural law sets down the norms for enforcement. Whenever civil rights of persons are affected by action, judicial decisions will supply the omissions in the law. The Code of Civil Procedure in India has a chequered history and lays down the details of procedure for redressal of civil rights. Many questions may prop up when one goes to indicate one's civil rights. The court where the suit is to be filed, the essential forms and procedure for institution of suit, the documents in support and against, evidence taking and trial, dimensions of an interim order, the peculiar nature of the suits, the complexities of executing a decree and provisions for appeal and revision are all matters which a lawyer for any side is to be familiar with. A delay in filing the suit, besides indicating the negligence of the plaintiff in effectively agitating the matter on time, may place courts in a precarious situation. They may not be in a position to appreciate the evidence correctly. Evidence might have been obliterated. Hence,

	the statute of limitation fixes a period within which a case has to be filed.
Course outcome	**CO1** The Students will know the detail procedure for Redressal of civil rights with practical aspects of functioning of Judiciary **CO2** Students will get the knowledge about Place of filing the suit, the essential forms and procedure for institution of suit, the documents in support and against, evidence taking and trial, dimensions of an interim order, the peculiar nature of the suits, the complexities of executing a decree and provisions for appeal and revision are all matters which a lawyer for any side is to be familiar with???????
Mapping between CO's with PSOs	
Course Content	1. Introduction : 1.1 Concepts 1.1.1 Affidavit, Order, Judgment decree, Plaint, restitution, execution, decree-holder Judgment -debtor, mesne profits, Written Statement. 1.1.2 Distinction between decree and judgment and between decree and order. 2. Jurisdiction 2.1 Kinds 2.1.1 Hierarchy of courts 2.2 Suit of Civil nature-scope and limits 2.3 Res-subjudice and Resjudicata 2.4 Foreign judgment -enforcement 2.5 Place of suing 2.6 Institution of suit 2.6.1 Parties to suit: joinder, mis-joinder or non-joinder of parties: representative suit. 2.6.1.1 Frame of suit: cause of action 2.6.2 Alternative disputes resolution (ADR) 2.6.3 Summons 3. Pleadings 3.1 Rules of pleading, signing and verfication. 3.1.1. Alternative pleading 3.1.2. Construction of pleadings 3.2 Plaint: particulars 3.2.1 Admission, return and rejection 3.3 Written statement: particulars, rules of evidence 3.3.1 Set off and counter claim : distinction 3.4 Discovery, inspection and production of documents. 3.4.1 Interrogatories 3.4.2 Privileged documents

	3.4.3 Affidavits 4. Appearance, examination and trial 4.1 Appearance 4.2 Ex-prate procedure 4.3 Summary and attendance of witnesses 4.4 Trial 4.5 Adjournments 4.6 Interim orders: commission, arrest or attachment before judgment, injunction and appointment of receiver 4.7 Interests and costs 5. Execution 5.1 The concept 5.2 general principles 5.3 Power for execution of decrees 5.4 Procedure for execution (Ss.52-54) 5.5 Enforcement, arrest and detection(Ss.55,59) 5.6 Attachment (Ss.60-64) 5.7 Sale (Ss.65-97) 5.8 Delivery of property 5.9 Stay of execution 6. Suit in particular cases 6.1 By or against government (Ss.79-82) 6.2 By aliens and by or against foreign rulers or ambassadors (Ss.83-87A) 6.3 Public nuisance (Ss.91-93) 6.4 Suits by or against firm 6.5 Suits in forma paupers 6.6 Mortgages 6.7 Interpleaded suits 6.8 Suits relating to public charities 7. Appeals 7.1 Appeals from original decree 7.2 Appeals from appellate decree 7.3 Appeals from orders 7.4 General provisions relating to appeal 7.5 Appeal to the Supreme Court 8. Review, reference and revision 9. Miscellaneous 9.1 Transfer of cases 9.2 Restitution

	9.3 Caveat 9.4 Inherent powers of courts 10. Law reform : Law Commission on Civil Procedure-amendments 11. Law of Limitation 11.1 The concept-the law assists the vigilant and not those who sleep over the rights. 11.2. Objet. 11.3. Distinction with latches, acquiescence, prescription. 11.4. Extension and suspension of limitation 11.5. Sufficient causes for not filing the proceedings 11.5.1 Illness 11.5.2 Mistaken legal advise 11.5.3 Mistaken view of law 11.5.4 Poverty, minority and Purdha 11.5.5 Imprisonment 11.5.6 Defective vakalatnama 11.6 Legal liabilities 11.7 Foreign rule of limitation : contract entered into under a foreign law 11.8 Acknowledgement - essential requisites 11.9 Continuing tort and continuing breach of contract.
Reference books	1) Mulla Code of Civil Procedure(1999), Universal, Delhi 2) C.K. Thaker: Code of Civil Procedure(2000), Universal, Delhi 3) M.R. Mallick: B.B. Mitra on Limitation Act(1998), Eastern, Lucknow 4) Majumdar P.K. & Kataria R.P.: Commentary on the Code of Civil Procedure, 1908(1998), Universal, Delhi 5) Saha A.N. : The Code of Civil Procedure(2000),Universal, Delhi 6) Sarkar's: Law of Civil Procedure CodeVols(2000), Universal, Delhi. Universal's Code of Civil Procedure (2000)
Teaching Methodology	Lecture method, discussion method and PPT presentation
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Course: 4545: Banking Law

Course Code	4545
Course Title	Banking Law
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	To gain knowledge of the banking laws.
Course objective	A vitally important economic institution the banking system is deeply influenced by socio-political and economic changes. The emerging changes in India, particularly after the initiation of the planning process as an instrument of rapid economic development had moulded and affected the banking structure, policies, patterns and practices. A significant development in the banking system is diversification in banks financing. The commercial banks entered 'into the field of wide ranging financial assistance to industry, both large and small scale, requiring the need for social control of the banking system eventually leading to the nationalization of banks. The conventional banking system, found to be deficient for planned developmental purposes, paved the way for developmental banking. The fag end of the last millennium witnesses influx of foreign banking companies into India and a shift in the banking policy as part of the global phenomenon of liberalization. The legal system is adopting itself into the new mores. This course is designed to acquaint the students with the conceptual and operational parameters of banking law, the judicial interpretation and the new and emerging dimensions of the banking system.
Course outcome	**CO1** Students will know the history of banking in India and its evolution and banking regulation Act, 1949, which is the primary source of regulation for banking companies. **CO2** Students will learn the experiential knowledge of the practice relating to banking. **CO3** Students will get to know in detail about The Role of RBI, Deposit Insurance Corporation of India Understanding of legal relation between banker and customer **CO4** Students will learn the Use of ICT in banking infrastructure and security issues **CO5** Students can find lucrative opportunities in the area of retail, investment, merchant, treasury and banking.
Mapping between CO's with PSOs	

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					
CO4					

	CO5
Course Content	1. Introduction 1.1. Nature and development of banking 1.2. History of banking in India and elsewhere -indigenous banking-evolution of banking in India - different kinds of banks and their functions. 1.3. Multi-functional banks - growth and legal issues. 2. Law Relating to Banking Companies in India 2.1. Controls by government and its agencies. 2.1.1. On management 2.1.2. On accounts and audit 2.1.3. Lending 2.1.4. Credit policy 2.1.5. Reconstruction and reorganisation 2.1.6. Suspension and winding up 2.2. Contract between banker and customer: their rights and duties 3. Social Control over Banking 3.1. Nationalization 3.2. Evaluation: private ownership, nationalisation and disinvestment 3.3. Protection of depositors 3.4. Priority lending 3.5. Promotion of under privileged classes 4. Deposit Insurance 4.1 The Deposit Insurance Corporation Act 1961: objects and reasons 4.1.2 Establishment of Capital of DIC 4.1.3 Registration of banking companies insured banks, liability of DIC to depositors 4.1.4 Relations between insured banks, DIC and Reserve Bank of India 5. The Central Bank 5.1. Evolution of Central Bank 5.2. Characteristics and functions 5.3. Economic and social objectives 5.4. The Central Bank and the State - as bankers' bank 5.5. The Reserve Bank of India as the Central Bank 5.5.1. Organisational structure 5.6. Functions of the RBI 5.6.1. Regulation of monitory mechanism of the economy 5.6.1.1. Credit control

	5.6.1.2. Exchange control 5.6.1.3. Monopoly of currency issue 5.6.1.4. Bank rate policy formulation 5.7. Control of RBI over non-banking companies 5.7.1. Financial companies 5.7.2. Non-financial companies 6. Relationship of Banker and Customer 6.1. Legal character 6.2. Contract between banker and customer 6.3. Banker's lien 6.4. Protection of bankers 6.5. Customers 6.5.1. Nature and type of accounts 6.5.2. Special classes of customers - lunatics, minor, partnership, corporations, local authorities 6.6. Banking duty to customers 6.7. Consumer protection: banking as service 7. Negotiable Instruments 7.1. Meaning and kinds 7.2. Transfer and negotiations 7.3. Holder and holder in due course 7.4. Presentment and payment 7.5. Liabilities of parties 8. Lending by Banks 8.1. Good lending principles 8.1.1. Lending to poor masses 8.2. Securities for advances 8.2.1. Kinds and their merits and demerits 8.3. Repayment of loans : rate of interest, protection against penalty 8.4. Default and recovery 8.4.1. Debt recovery tribunal 9. Recent Trends of Banking System in India 9.1. New technology 9.2. Information technology 9.3. Automation and legal aspects 9.4. Automatic teller machine and use of internet 9.5. Smart card 9.6. Use of expert system 9.7. Credit cards 10. Reforms in Indian Banking Law

	10.1. Recommendations of committees: a review
Reference books	1) Basu, A. Review of Current Banking Theory and Practise (1998) Mac millan 2) M. Hapgood (ed.), Pagets' Law of Banking (1989) Butterworths, London 3) R. Goode, Commercial Law, (1995) Penguin, London. 4) Ross Cranston, Principles of Banking Law (1997) Oxford. 5) L.C. Goyle, The Law of Banking and Bankers (1995) Eastern 6) M.L. Tannan, Tannan's Banking Law and Practice in India (1997) India Law House, New Delhi, 2 volumes 7) K.C. Shekhar, Banking Theory and Practice (1998) UBS Publisher Distributors Ltd. New Delhi. 8) M. Dassesse, S. Isaacs and G. Pen, E.C. Banking Law, (1994) Lloyds of London Press, London 9) V. Conti and Hamaui (eds.), Financial Markets' Liberalization and the Role of Banks', Cambridge University Press, Cambridge, (1993). 10) J. Dermine (ed.), European Banking in the 1990s' (1993) Blackwell, Oxford. 11) C. Goodhart, The Central Bank and the Financial System (1995), Macmillan, London 12) S. Chapman, The Rise of Merchant Banking (1984) Allen Unwin, London 13) K. Subrahmanyan, Banking Reforms ain India (1997) Tata Maigraw Hill, New Delhi. 14) Subodh Markandeya and Chitra Markandeye, Law Relating to Foreign Trade in India: Being a Commentary on the Foreign Trade, (Development and Regulation) Act 1992, Universal Law Publishing Co. Pvt. Ltd. Delhi. 15) R.S. Narayana, The Recovery of Debts due to Banks and Financial Institutions Act, 1993 (51 of 1993), Asia Law House, Hyderabad. 16) M.A. Mir, The Law Relating to Bank Guarantee in India (1992), Metropolitan Book, New Delhi. 17) Anthony Pierce, Demand Guarantees in International Trade (1993) Sweet & Maxwell, 18) Ross Cranston (ed.) European Banking Law: The Banker-Customer Relationship (1999) LLP, London 19) Mitra, The Law Relating to Bankers' Letters of Credit and Allied Laws, (1998) University Book Agency, Allahabad. 20) R.K. Talwar, Report of Working Group on Customer Service in Banks 21) Janakiraman Committee Report on Securities Operation of Banks and Financial Institution (1993) Narasimham Committee report on the Financial System (1991)- Second Report (1999)
Teaching Methodology	Lecture method, discussion method and PPT presentation
Evaluation Method	Internal Assessment Internal Written Test (Compulsory) — 15 Marks Attendance — 05 Marks Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / — 10 Marks

	Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	
	External University exams	70 marks
	Total	100 marks

Course: **4546: Taxation II: Indirect Taxes**

Course Code	4546
Course Title	**Taxation II : Indirect Taxes**
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2017
Purpose of course	To study the taxation laws
Course objective	Power to tax had been described as the power to destroy. This idea is being floated often whenever the state introduces a new tax. Is this true? Is it not necessary that in order to raise revenue and place the economy on solid foundation, the taxing power should be conferred on the state? The power to tax shall not go unregulated. In the context of a federal structure the distribution of the taxing powers assumes added significance. Obviously, a study of the constitutional framework on taxation becomes important. Along with this, an analysis of the different laws enacted in exercise of these powers with their safeguards and remedies sheds light on the mechanics of the taxation by the Union and the States.
Course outcome	**CO 1**- Understand the application of business Knowledge in both theoretical and practical aspects. **CO 2**- Determine the procedures and schedules to be followed on preparing financial statements of Companies. **CO 3**- File Income tax return and compute the tax liability of individuals **CO 4**- Develop proficiency in the management of an organization **CO 5**- Attain skills in conducting business transactions online **CO6** - Learn the basic skills for the effective utilization of funds **CO7** - Follow the ethics pertaining to business transactions

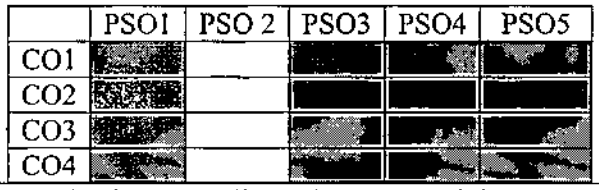
Mapping between CO's with PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					
CO4					
CO5					
CO6					
CO7					

Course Content	Unit 1 : Basic Concepts & Definition of GST : Part - 1 Central Goods & Service Tax, 2017 Part - 2 The Integrated Goods & Services Tax Act, 2017 Part - 3 The Union Territory Goods & Service Tax Act - 2017 Part - 4 The Goods and Service (Compensation to States) Act 2017 The Gujarat State Law - State Goods & Services tax Act, 2017 1 Definition 2 Administration 3 Levy & Collection of Taxes 4 Time & Value of Supply, Scope of Supply, Place of Supply of Goods or Services or Both 5 Input Tax Credit 6 Registration Composition Scheme - Small Traders, Manufacturers, Restaurant Job Works in GST Valuation Rules 7 Tax Invoice, Credit & Debit Notes 8 Accounts and Records 9 Returns 10 Payment of Tax, Refunds 11 Assessments 12 Audit 13 Inspection - Search, Seizure and Arrest 14 Demands & Recovery 15 Liability to pay in certain cases 16 Advance Ruling 17 Appeals & Revision 18 Offences and Penalties 19 Transitional Provisions 20 Miscellaneous: Schedules, HSN Codes, etc... 2. Customs - 2.1 - Basic Concepts and Definitions 2.2 - Exemptions
Reference books	1. GST Ready Reckoner - V. S. Datey 2. GST Taxmann Publication - S. S. Gupta 3. GST Bare Act & Rules - 2017 4. The Central Goods & Service Tax Act - 2017 - Bharat L. Sheth 5. GST Tariff - Taxman Publication 6. Gujarat GST Rule 2017 SBD Publication 7. GST Rule 2017 - Bharat L. Sheth 8. Goods & Services Tax - Khandhar, Vanja (KMS Publication) In Gujarat
Teaching Methodology	Lecture method, discussion method and PPT presentation
Evaluation Method	Internal Assessment

	Internal Written Test (Compulsory)	15 Marks
	Attendance	05 Marks
	Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
	External University exams	70 marks
	Total	100 marks

Course: Intellectual Property Law-1

Course Code	4547
Course Title	**Intellectual Property Law-1**
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2016
Purpose of course	To understand the concept and types of intellectual property.
Course objective	To introduce the students to the concepts of copyright and trademarks and provisions available at domestic and international level.
Course outcome	**CO1:** Identify different types of Intellectual Properties (IPs), the right of ownership, scope of protection as well as the ways to create and to extract value from IP. **CO2:** Identify activities and constitute IP infringements and the remedies available to the IP owner and describe the precautious steps to be taken to prevent infringement of proprietary rights in the field of copyright and trademark. **CO3:** Be able to anticipate and subject to critical analysis arguments relating to the development and reform of intellectual property right institutions and their likely impact on creativity and innovation. **CO4:** Be able to demonstrate a capacity to identify, apply and assess ownership rights and marketing protection under intellectual property law as applicable to copyright and trade mark.
Mapping between CO's with PSOs	
Course Content	UNIT 1 - Introduction to Intellectual Property Rights • Meaning of Intellectual property • Main forms of Intellectual Property • IPR and Human Rights

	UNIT – 2 The Copyrights (Indian Copyright Act, 1957 • Introduction to Copyright • Authorship and ownership of Copyright • Rights conferred on copyright owners • Term of Copyright • Assignment/License of Copyright • Infringement of Copyright • Infringement in Literary, Dramatic & Musical Works • Remedies against Infringement of Copyright • Registration of Copyright • Publication • Performer's Rights • International Copyright UNIT – 3 International Treaties on Copyright and Related Rights • Berne Convention • Universal Copyright Convention • WIPO Copyright Treaty • Rome Convention • Freedom of Speech & Expression – Copyright Protection on Internet – WIPO Copyright Treaty, 1996 UNIT – 4 Trademarks (The Trademarks Act, 1999) • Introduction • Definitions • Registration of Trademarks, Procedure, Grounds of Refusal and Well Known Trademarks • Distinction between Trademark and Property Mark • Doctrine of Honest Concurrent User • Doctrine of Deceptive Similarity • Passing Off, Infringement and Exceptions to Infringement Actions, Remedies • Assignment and Licensing • Intellectual Property Appellate Board UNIT – 5 International Treaties on Trademark • Paris Convention • Madrid Agreement Concerning the International Registration of Marks & Protocol.
Reference books	• N.S. Gopalakrishnan & T.G. Ajitha, Principles of Intellectual Property, Eastern Book Company • B.L. Wadhera, Law Relating to Intellectual Property, Universal Law Publishing,

<table>
<tr><td></td><td>• Narayan, Intellectual Property Law in India, Gogia Law Agency, Hyderabad
• Kailasam and Vedaraman, Law of Trade Marks and Geographical Indications (Wadhwa, Nagpur).
• Srikanth Venkataraman, Understanding Design Law (Universal Law Publishing Co. Pvt. Ltd, New Delhi).
• David Bainbridge, Intellectual Property (Pearson Education, Delhi)
• A. K. Bansal, Law of Trademark In India, Thomson & Reuter
• V.K. Ahuja, Law Relating to Intellectual Property Law, Lexis Nexis
• Elizabeth Verky, Law of Patents, Eastern India Company
• Jayashree Watal, Intellectual Property Rights in the WTO and Developing Countries, Oxford University Press
• P. Narayanan, Law of Trademarks (The Trademarks Act 1999) and Passing Off, Eastern Law, Calcutta
• W.R. Cornish, Intellectual Property: Patents, Copyright, Trademark and Allied Rights, Universal Law Publishing
• C.S. Lal, Intellectual Property Handbook: Copyright, Designs, Patents & Trademarks, Law Publishers, Allahabad
The Annual Survey of Indian Law: and the Berne Century on Copyright, JILI 1986.</td></tr>
<tr><td>Teaching Methodology</td><td>The Lecture method as it is one of the most important ways of teaching through which a teacher develops an understanding of the subject to its core by explaining a concept through examples, thereby making it a student centric approach.
The Socratic method of teaching which gives an opportunity to the students to ask questions to the teachers would be emphasized by the teachers. Similarly, a variety of approaches has been adopted to achieve the objectives of the programme with the use of audio-visual aids, charts, projectors, power point presentations, LCD projectors and all other tools to disseminate knowledge to the students.</td></tr>
<tr><td>Evaluation Method</td><td>Internal Assessment
<table>
<tr><td>Internal Written Test (Compulsory)</td><td>15 Marks</td></tr>
<tr><td>Attendance</td><td>05 Marks</td></tr>
<tr><td>Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course</td><td>10 Marks</td></tr>
<tr><td>External University exams</td><td>70 marks</td></tr>
<tr><td>Total</td><td>100 marks</td></tr>
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Course: 4548: Law of Equity and Trust

Course Code	**4548**

<table>
<tr><td>Course Title</td><td>Law of Equity and Trust</td></tr>
<tr><td>Credit</td><td>6</td></tr>
<tr><td>Teaching per week</td><td>6 hrs</td></tr>
<tr><td>Minimum weeks per semester</td><td>18 weeks (Including classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>2016</td></tr>
<tr><td>Purpose of course</td><td>To make student understand the concept of Equity and the provisions of Indian Trust Act and Bombay Public Trust Act.</td></tr>
<tr><td>Course objective</td><td>Trust being an obligation connected with property, the law has to play a key role in protecting interests of persons for whose benefit trust is created and for balancing the rights and duties of persons connected with trust transactions. There are also instances where even in the absence of specific trust, law has to protect the beneficial interests of persons on equitable considerations. Trusts may also be created for public purposes of charitable and religions nature. The existing laws in respect of trusts, equitable and fiduciary relations connected with property are to be taught in detail. Students should also to be conscientized of the emerging public trust doctrine of common property resources</td></tr>
<tr><td>Course outcome</td><td>CO1 Explain and apply to a factual problem the law relating to fiduciary obligations, trusts (including express, resulting and constructive trusts), equitable remedies, tracing and equitable assignment. Such discussion should note any unresolved or ambiguous questions of law and propose a reasoned answer to the problem that acknowledges strengths and weaknesses of the arguments made;
CO2 Analyse and predict how unresolved or ambiguous questions of equitable doctrine could be resolved by the courts;
CO3 Describe and evaluate fundamental themes underlying and connecting the specific doctrines covered, including the relationship of equity to other parts of the law.</td></tr>
<tr><td>Mapping between CO's with PSOs</td><td><table><tr><th></th><th>PSO1</th><th>PSO2</th><th>PSO3</th><th>PSO4</th><th>PSO5</th></tr><tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>Course Content</td><td>1. Introductory :

1.1 The concept of trust: distinction with agency and contract
1.2 Development of law: Common law and equity
1.3 Trusts: Classification

2. Definition and Nature of trusts under the Indian Law.
2.1 Creation of trusts : rules

3. Duties of trustees</td></tr>
</table>

	3.1 Execution 3.2 Acquaintance with the nature of Property 3.3 Duties in respect of title 3.4 Duty of care 3.5 Conversion 3.6 Impartiality 3.7 Prevention of waste 3.8 Keeping of accounts and giving of information 3.9 Investment 3.10 Sale 3.11 Liability for breach of trust 4. Rights of Trustees 4.1 Title deed 4.2 Reimbursement 4.3 Indemnity 4.4 Seeking direction from court 4.5 Settlement of accounts 4.6 General authority 5. Powers of trustees 5.1 Sale 5.2 Varying of Investment 5.3 Property of minors 5.4 Giving receipts 5.5 Power to compound, compromise and settle 5.6 Exercising authority 5.7 Suspension of trustee's power 6. Disabilities of trustees 7. Rights of beneficiaries 7.1 Rents and profits 7.2 Special execution 7.3 Inspection and information 7.4 Transfer 7.5 Suit for execution 7.6 To have proper trustees 7.7 Right to compel the trustee to do the duties 7.8 Rights on wrongful purchase or acquisition by trustees 7.9 Follow of trust properties in the hands of third parties

	7.10 Blending of property by trustee 7.11 Wrongful application of trust property by trustee for partnership purposes. 8. Liabilities of Beneficiaries 3. Discharge of Trustees 4. Appointment of New Trustees 5. Extinction of Trust 6. Constructive trusts : the equitable and fiduciary Relationship 12.1 Transfer without intent to dispose beneficial interest 12.2 Trust incapable of execution and trusts executed fully without exhausting property the cypress doctrine 12.3 Transfer and request for illegal purpose 12.4 Transfer pursuant to rescindable contract 12.5 Debtor becoming creditor's representative 12.6 Advantage from undue influence 12.7 Advantage by qualified owner 12.8 Property acquired with notice of existing contract 12.9 Purchase by person contracting to buy property to be held on trust 12.10 Possession of property without whole beneficial interest 12.11 Duties of constructive trustees 12.12 Rights of bonafide purchasers 7. Special legislation 13.1 Charitable and religious trust 8. Common property resources and public trust doctrine
Reference books	S.Krishnamurthy Aiyara and Harbans Lal Swin: Principles and Digest of Trusts (1998), Universal Book Agency, Allahabad. R.H. Mandsley and E.H.Bum: Trust and Trustees: Cases and Materials (1978), Butterworth. London R.E. Megarry and P.V. Baker: Snell's Principles of Equity(1964)ELBS, Sweet & Maxwell, Philip H. Pettit: Equity and Law of Trust (1970) Iyer N.: Indian Trust (1997), Delhi Law House, New Delhi. Ahmedullah Khan: The Law of Wakf in India (1997), Delhi Law House, Dew Delhi. Rajarathanam, Natarajan and Thankaraj: Commentary on Charitable Trusts and Religious Institutions (2000), Universal, Delhi.

	Mukerjee : Commentary on Indian Press Act, (1999) Universal, Delhi Rao C.R.: The Indian Trust Act and Allied Laws (1999)
Teaching Methodology	The Lecture method as it is one of the most important ways of teaching through which a teacher develops an understanding of the subject to its core by explaining a concept through examples, thereby making it a student centric approach. The Socratic method of teaching which gives an opportunity to the students to ask questions to the teachers would be emphasized by the teachers. Similarly, a variety of approaches has been adopted to achieve the objectives of the programme with the use of audio-visual aids, charts, projectors, power point presentations, LCD projectors and all other tools to disseminate knowledge to the students.
Evaluation Method	Internal Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Semester 8								
Course Code	**Title**	**Teaching per week**		**Course Credit**	**University Examination**		**Internal Marks**	**Total Marks**
		Theory	Practical		Duration	Marks		
4551	Foreign Trade	6	0	6	3hrs	70	30	100
4552	Law of Evidence	6	0	6	3hrs	70	30	100
4553	Information Technology Law	6	0	6	3hrs	70	30	100
4554	Intellectual Property Law 2	6	0	6	3hrs	70	30	100
4555	Insurance Law	6	0	6	3hrs	70	30	100

Course: 4553: Information Technology Law

Course Code	4553
Course Title	Information Technology Law
Credit	6

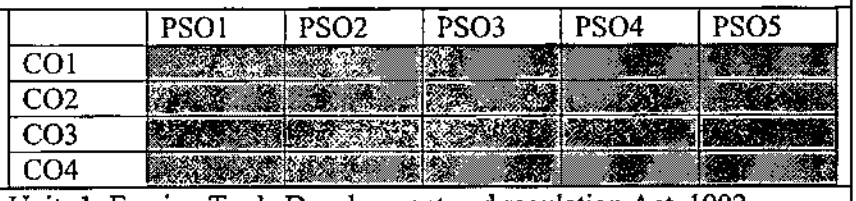
<table>
<tr><td>Teaching per week</td><td>6 hrs</td></tr>
<tr><td>Minimum weeks per semester</td><td>18 weeks (Including classwork, examination, preparation, holidays etc.)</td></tr>
<tr><td>Effective from</td><td>2013-2014</td></tr>
<tr><td>Purpose of course</td><td>To make students understand the provisions of Information technology Act, 2000</td></tr>
<tr><td>Course objective</td><td>The underlying objective of this course is to provide the student an insight into the legal regime governing information technology and e-governance.</td></tr>
<tr><td>Course outcome</td><td>CO1 To explain, distinguish and apply the fundamental legal principles of information technology law covered in the course.
CO2 Select and apply a range of approaches to written and oral communication, and apply the critical thinking required to bring about solutions to complex legal problems in the area of information technology law.
CO3 Access, use, interpret and apply a range of domestic primary and secondary legal resources to solve complex problems.
CO4 Undertake a research project with intellectual independence.</td></tr>
<tr><td>Mapping between CO's with PSOs</td><td>
<table>
<tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Course Content</td><td>Unit -1: The Information technology Act, 2000
Preliminary
1. Extent
2. Definitions
3. Authentication of electronic records
4. Electronic signature
Unit -2: E-Governance
1. Electronic governance (section 4, 5, 6,7,10)
2. Attribution, acknowledgement and dispatch of electronic records(section 11,12,13)
3. Secure electronic records and electronic signature(section 14,15,16)
4. Appointment of controller and functions
Unit -3: Licensing
1. License to issue electronic signature certificate
2. Procedure of grant and rejection of certificate(section 17-34)
3. Electronic signature certificate(section 35-39)
Unit -4: Penalties and compensation
1. Penalties, compensation, adjudication
2. The cyber appellate tribunal (section 48-64)
Unit -5: Offences
1. Offences under the Act</td></tr>
</table>

	2. Punishments under the Act 3. Power of controller 4. Miscellaneous powers(section 65-90)
Reference books	1. Bare Act of information technology Act,2000 2. Nandan Kamath Law relating computers Internet & E-Commerce, Universal Law Publishing Co. Pvt. Ltd. Delhi. 3. M. K. Saxena,Information Technology Law: Concepts, Evolution & Enactments, Mangal Deep Publ.
Teaching Methodology	The Lecture method as it is one of the most important ways of teaching through which a teacher develops an understanding of the subject to its core by explaining a concept through examples, thereby making it a student centric approach. The Socratic method of teaching which gives an opportunity to the students to ask questions to the teachers would be emphasized by the teachers. Similarly, a variety of approaches has been adopted to achieve the objectives of the programme with the use of audio-visual aids, charts, projectors, power point presentations, LCD projectors and all other tools to disseminate knowledge to the students.
Evaluation Method	Internal and External Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Course: 4551: Foreign Trade

Course Code	4551
Course Title	Foreign Trade
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	To acquaint the students with the Foreign Trade
Course objective	The objective of this course is to familiarize the student with the various laws regulating the foreign trade of India and exchange and management of foreign exchange in India.
Course outcome	**CO1** Students will Study on origin, development and functioning of WTO as trade regulatory body.

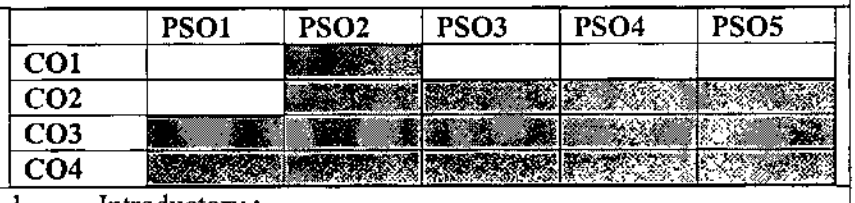
	CO2 Students will understand the development of trade in international level **CO3** The Focus on concepts like FDI norms, TBT, SPS, Dumping and related areas are providing additional knowledge to the students **CO4** Students will be familiar with the process and conditions of technology transfer, foreign collaborations, NRI investments, etc. **CO4** Students will have a detailed knowledge about the policies and rules regulating international trade
Mapping between CO's with PSOs	
Course Content	Unit -1: Foreign Trade Development and regulation Act, 1992 Preliminary 1. Definitions 2. Power of central government to make orders and announce EXIM policy Unit -2: Search and Seizures 1. Search, seizures, penalty 2. Confiscation 3. Appeal and revision Unit -3: Foreign exchange management Act, 1999 Preliminary 1. Definitions 2. Regulation and management of foreign exchange 3. Authorized person Unit -4: Contraventions, Penalties 1. Contravention 2. Penalties 3. Directorate of enforcement Unit -4: Appeals 1. Adjudication 2. Appeals
Reference books	1. Bare Act of foreign trade Development and regulation Act, 1992 2. Bare Act of foreign Exchange and Management Act, 1999. 3. Government of India, Handbook of Import Export Procedures, (2009) 4. Government of India Import and Export Policy (2009-2014)

	5. Luis A. Rivera-Batiz & Maria A. Oliva, International Trade: Theory, Strategies, and Evidence.
Teaching Methodology	Lecture method, discussion method and PPT presentation
Evaluation Method	Internal and External Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Course: 4552: Law of Evidence

Course Code	**4552**
Course Title	**Law of Evidence**
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	September 2013
Purpose of course	The law of evidence has its own significance amongst procedural laws. The knowledge of law of evidence is indispensable for a lawyer. The course is designed to acquaint the students with the rules of evidence in relation to relevancy of facts and proof. In addition, they are introduced to law relating to production of evidence. The course teacher shall familiarize the students with appreciation of evidence and use innovative techniques like simulation exercises wherever necessary.
Course objective	The law of evidence, is an indispensable part of both substantive and procedural laws. It imparts credibility to the adjudicatory process by indicating the degree of veracity to be attributed to 'facts' before the forum. This paper enables the student to appreciate the concepts and principles underlying the law of evidence and identify the recognized forms of evidence and its sources. The subject seeks to impart to the student the skills of examination and appreciation of oral and documentary evidence in order to find out the truth. The art of examination and cross-examination, and the shifting nature of burden of proof are crucial topics. The concepts brought in by amendments to the law of evidence are significant parts of study in this course.

Course outcome	**CO1**The law of evidence has its own significance amongst procedural laws. The knowledge of law of evidence is indispensable for a lawyer. The course is designed to acquaint the students with the rules of evidence in relation to relevancy of facts and proof. In addition, they are introduced to law relating to production of evidence. **CO2** To analyze and define the concept and general nature of evidence, and illustrate the different types of evidence and court procedures relating to evidence. **CO3** To Analyze the rule relating to relevance of evidence and admissibility of evidence before the court. **CO4** To Evaluate the rules relating to dying declaration and admissibility of dying declaration.
Mapping between CO's with PSOs	
Course Content	1. Introductory : 1.1 The main features of the Indian Evidence Act, 1861. 1.2 Other acts which deal with evidence (special reference to CPC, Cr. P.C) 1.3 Problem of applicability of Evidence At 1.3.1 Administrative 1.3.2 Administrative Tribunals 1.3.3 Industrial Tribunals 1.3.4 Commissions of Enquiry 1.3.5 Court Martial 1.4 Disciplinary authorities in educational institutions. 2. Central Conceptions in Law of Evidence 2.1 Facts: Section 3 definition : distinction relevant facts / facts in issue 2.2 Evidence : Oral and documentary 2.3 Circumstantial evidence and direct evidence 2.4 Presumption (section 4) 2.5 "Proving", "not providing" and "disproving" 2.6 Witness 2.7 Appreciation of evidence 3. Facts : relevancy 3.1 The Doctrine of res gestae (Section 6,7,8,10) 3.2 Evidence of common intention (Section 10) 3.3 The problems of relevancy of "Otherwise" irrelevant facts (Section 11) 3.4 Relevant facts for proof of custom (Section 13)

	3.5 Facts concerning bodies & mental state (Section 14,15) 4. Admissions and confessions 4.1 General principles concerning admission (Section 17, 23) 4.2 Differences between "admission" and "confession" 4.3 The problems of non-admissibility of confessions caused by "any inducement, threat of promise' (Section 24) 4.4 Inadmissibility of custodial made before a police officer (Section 25) 4.5 Admissibility of custodial confessions (Section 26) 4.6 Admissibility of "information" received from accused person in custody; with special reference to the problem of discovery based on "joint statement"(Sec.27) 4.7 Confession by co-accused (Section 30) 4.8 The problem with the judicial action based on a "retracted confession" 5. Dying Declarations 5.1 The justification for relevance on dying declarations (Section 32) 5.2 The judicial standards for appreciation of evidentiary value of dying declarations. 6 Other Statements by Persons who cannot be called as Witnesses 6.1 General principles. 6.2 Special problems concerning violation of women's rights in marriage in the law of evidence 7. Relevance of Judgments 7.1 General principles 7.2 Admissibility of judgments in civil and criminal matters (Section 43) 7.3 "Fraud" and "Collusion" (Section 44) 8. Expert Testimony 8.1 General principles 8.2 Who is an expert? : Types of expert evidence 8.3 Opinion on relationship especially proof of marriage (Section 50) 8.4 The problem of judicial defence to expert testimony. 9. Oral and Documentary Evidence 9.1 General principles concerning oral evidence (Section 59-60) 9.2 General principles concerning Documentary Evidence (Section 67-90)

	9.3 General Principles Regarding Exclusion of Oral by Documentary Evidence 9.4 Special problem: re-hearing evidence 9.5 issue estoppel 9.6 Tenancy estoppel (Section 116) 10 Witnesses, examination and Cross Examination 10.1 Competency to testify (Section 118) 10.2 State privilege (Section 123) 10.3 Profcssional privilege (Section 126, 127, 128) 10.4 Approval testimony (Section 133) 10.5 General principles of examination and cross examination (Section 135-166) 10.6 Leading questions (Section 141-143) 10.7 Lawful questions in cross-examination (Section 146) 10.8 Compulsion to answer questions put to witness 10.9 Hostile witness (Section 154) 10.10 Impeaching of the standing or credit of witness (Section 155) 11. Burden of Proof 11.1 The general conception of onus probandi (Section 101) 11.2 General and special exceptions to onus probandi 11.3 The justification of presumption and of the doctrine of judicial notice 11.4 Justification as to presumptions as to certain offences (Section 111A) 11.5 Presumption as to dowry death (Section 113-B) 11.6 The scope of the doctrine of judicial notice (Section 114) 12 Estoppel 12.1 Why estoppel? The retionale (Section 115) 12.2 Estoppel, res judiciata and waiver and presumption 12.3 Estoppel by deed 12.4 Exstoppel by conduct 12.5 Equitable and promissory estoppel 12.6 Questions of corroboration (Section 15-157) 12.7 Improper admission and of withess in civil and criminal cases.
Reference books	1) Sarkar and Manohar : Sarkar on Evidence(1999), Wadhawa & Co; Nagour Indian Evidence Act (Amendment up to date) 2) Ratanlal-Dhirajlal : Law of Evidence (1994), Wadhawa & Co; Nagpur 3) Polein Murphy: Evidence (5th Edn. Reprint 2000) Universal, Delhi 4) Alberts, Osborn: The Problem of Proof (First Indian Reprint 1998) Universal, Delhi

	5) Avtar Singh: Principal of the Law of Evidence (1992), Central Law Agency, New Delhi.
Teaching Methodology	Lecture method, Discussion method, Through power point, Through Book, Journals, Bare Act etc, Group discussion methods, Assignment method
Evaluation Method	Internal and External Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Course: **4554: Intellectual Property Law 2**

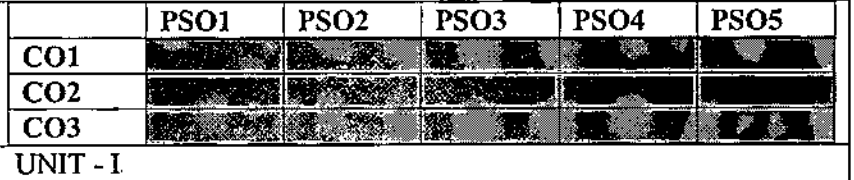
Course Code	**4554**
Course Title	**Intellectual Property Law 2**
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2016
Purpose of course	To understand the concept and types of various industrial properties including patents, geographical indications and industrial designs.
Course objective	To introduce the students to the concepts of patents, geographical indications and industrial designs and such other industrial properties along with provisions available at domestic and international level.
Course outcome	**CO1:** Identify different types of Intellectual Properties (IPs), the right of ownership, scope of protection as well as the ways to create and to extract value from IP. **CO2:** Identify activities and constitute IP infringements and the remedies available to the IP owner and describe the precautious steps to be taken to prevent infringement of proprietary rights in the field of industrial properties. **CO3:** Be able to anticipate and subject to critical analysis arguments relating to the development and reform of intellectual property right institutions and their likely impact on creativity and innovation. **CO4:** Be able to demonstrate a capacity to identify, apply and assess ownership rights and marketing protection under intellectual property law as applicable to industrial properties.

Mapping between CO's with PSOs			PSO1	PSO 2	PSO3	PSO4	PSO5
		CO1					
		CO2					
		CO3					
		CO4					
Course Content	**<u>UNIT 1 - Patent (The Patents Act, 1970)</u>** • Introduction to Patents • Patentable subject-matter – (Patent in Computer Programmes, Business Method, Patenting of Micro-organism) • Procedure for Obtaining of Patents • Rights Conferred on a Patentee • Transfer of Patent • Revocation and Surrender of Patents • Infringement of Patents • Action for Infringement **<u>UNIT 2 - International Treaties on Patent</u>** • Paris Convention • Patent Co-operation Treaty **<u>UNIT – 3 Industrial Design (The Designs Act, 2000)</u>** • Introduction • Designs v/s Copyright and Trademark • Definitions • Registration of Designs and Procedure • Cancellation of Registration of Design • Piracy of Registered Design and Remedies **<u>UNIT – 4 Geographical Indication</u>** • Geographical Indications – New additions to IPR • Trademarks v. Geographical Indications • Generic Names v. Geographical Indications • Indian Scenario - Geographical Indications of Goods (Registration & Protection) Act, 1999 • Protection of Geographical Indications at International Level **<u>UNIT – 5 Emerging Areas of International Intellectual Property Law</u>** • Biodiversity & Traditional Knowledge					

<table>
<tr><td></td><td>• Cyber Crime And IPR
• The Protection of Plant varieties and farmers Rights Act, 2001</td></tr>
<tr><td>Reference books</td><td>• N.S. Gopalakrishnan & T.G. Ajitha, Principles of Intellectual Property, Eastern Book Company
• B.L. Wadhera, Law Relating to Intellectual Property, Universal Law Publishing,
• Narayan, Intellectual Property Law in India, Gogia Law Agency, Hyderabad
• Kailasam and Vedaraman, Law of Trade Marks and Geographical Indications (Wadhwa, Nagpur).
• Srikanth Venkataraman, Understanding Design Law (Universal Law Publishing Co. Pvt. Ltd, New Delhi).
• David Bainbridge, Intellectual Property (Pearson Education, Delhi)
• A. K. Bansal, Law of Trademark In India, Thomson & Reuter
• V.K. Ahuja, Law Relating to Intellectual Property Law, Lexis Nexis
• Elizabeth Verky, Law of Patents, Eastern India Company
• Jayashree Watal, Intellectual Property Rights in the WTO and Developing Countries, Oxford University Press
• P. Narayanan, Law of Trademarks (The Trademarks Act 1999) and Passing Off, Eastern Law, Calcutta
• W.R. Cornish, Intellectual Property: Patents, Copyright, Trademark and Allied Rights, Universal Law Publishing
• C.S. Lal, Intellectual Property Handbook: Copyright, Designs, Patents & Trademarks, Law Publishers, Allahabad
The Annual Survey of Indian Law: and the Berne Century on Copyright, JILI 1986.</td></tr>
<tr><td>Teaching Methodology</td><td>The Lecture method as it is one of the most important ways of teaching through which a teacher develops an understanding of the subject to its core by explaining a concept through examples, thereby making it a student centric approach.
The Socratic method of teaching which gives an opportunity to the students to ask questions to the teachers would be emphasized by the teachers. Similarly, a variety of approaches has been adopted to achieve the objectives of the programme with the use of audio-visual aids, charts, projectors, power point presentations, LCD projectors and all other tools to disseminate knowledge to the students.</td></tr>
<tr><td>Evaluation Method</td><td>Internal and External Assessment
<table>
<tr><td>Internal Written Test (Compulsory)</td><td>15 Marks</td></tr>
<tr><td>Attendance</td><td>05 Marks</td></tr>
<tr><td>Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course</td><td>10 Marks</td></tr>
</table></td></tr>
</table>

External University exams	70 marks
Total	100 marks

Course: 4555: Insurance Law

Course Code	4555
Course Title	**Insurance Law**
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	To acquire the knowledge of Insurance law
Course objective	The insurance idea is an old-institution of transactional trade. Even from olden days merchants who made great adventures gave money by way of consideration, to other persons who made assurance, against loss of their goods, merchandise ships and things adventured. The rates of money consideration were mutually agreed upon. Such an arrangement enabled other merchants more willingly and more freely to embark upon further trading adventures. The operational framework of insurance idea is provided by the general principles of contract. The insurance policy, being a contract, is subject to all the judicial interpretative techniques of rules of interpretation as propounded by the judiciary. Besides, the insurance idea has a compensatory justice component. This course is designed to acquaint the students with the conceptual and operational parameters, of insurance law.
Course outcome	**CO1** Students will understand the conditions and principles of Insurance. **CO2** Students will have an idea about the role played by consumer courts and Insurance ombudsman **CO3** Students will get basic information about Insurance contract terms and liabilities, conations for claim and settles the litigations, etc.
Mapping between CO's with PSOs	
Course Content	UNIT - I Introduction: Nature- Definition- History of Insurance- History and development of Insurance in India- Insurance Act, 1938- (main sections) Insurance Regulatory Authority Act, 1999: Its role and functions. UNIT - II Contract of Insurance: Classification of contract of Insurance- Nature of various

	Insurance Contracts- Parties there to- Principles of good faith - non disclosure - Misrepresentation in Insurance Contract- Insurable Interest- Premium: Definition method of payment, days of grace, forfeiture, return of premium, Mortality; The risk -Meaning and scope of risk, Causa Proxima, Assignment of the subject matter. UNIT - III Life Insurance: Nature and scope of Life Insurance- Kinds of Life Insurance. The policy and formation of a life insurance contract- Event insured against Life Insurance contract- Circumstance affecting the risk- Amount recoverable under the Life Policy- Persons entitles to payment- Settlement of claim and payment of money- Life Insurance Act, 1956- Insurance against third party rights- General Insurance Act, 1972- The Motor Vehicles Act, 1988 - Sec. (140-176), Nature and scope- Absolute or no fault liabilities, Third party or compulsory insurance of motors vehicles- Claims TribunalPublic Liability Insurance -Legal aspects of Motor Insurance -Claims - Own Damages Claims - Third Party Liability Claims. UNIT - IV Fire Insurance: Nature and scope of Fire Insurance -Basic Principles - Conditions & Warranties - Right & Duties of Parties - Claims - Some Legal Aspects. Introduction to Agriculture Insurance - History of Crop Insurance in India - Crop Insurance Underwriting, Claims, Problems associated with Crop Insurance - Cattle Insurance in India. UNIT - V Marine Insurance: Nature and Scope- Classification of Marine policies- Insurable interest- Insurable values- Marine insurance and policy- Conditions and express warranties- Voyage deviation- Perils of sea- Loss- Kinds of Loss- The Marine Insurance Act, 1963 (Sections 1 to 91).
Reference books	1) K. S. N. Murthy and K. V. S. Sharma - Modern Law of Insurance in India. 2) M. H. Srinivasan - Principles of Insurance Law. 3) Reference Books: 4) E. R.Hardy Ivamy - General Principles of Insurance Law, relevant Chapters. 5) Insurance Act, 1938. 6) The Marine Insurance Act, 1963. 7) General Insurance (Business) (Nationalization) Act, 1972. The Life Insurance Corporation Act, 1956. 8) Motor Vehicle Act, 1988.

Teaching Methodology	Lecture method, discussion method and PPT presentation
Evaluation Method	Internal and External Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Semester 9								
Course Code	**Title**	**Teaching per week**		**Course Credit**	**University Examination**		**Internal Marks**	**Total Marks**
		Theory	**Practical**		**Duration**	**Marks**		
	Drafting, Pleading and Conveyance	6	0	6	3hrs			100
4558	Human Rights Law and Procedure	6	0	6	3hrs	70	30	100
4559	Right to Information	6	0	6	3hrs	70	30	100
4560	Alternate Dispute Resolution	6	0	6	3hrs	70	30	100
4561	Interpretation of Statutes and Principles of Legislation	6	0	6	3hrs	70	30	100

Course: Drafting, Pleading and Conveyance

Course Code	
Course Title	**Drafting, Pleading and Conveyance**
Credit	18
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014

<table>
<tr><td>Purpose of course</td><td>This is a kind of practical paper, related to purely procedural aspect of the legal profession, wherein it is difficult to explain the concepts theoretically.</td></tr>
<tr><td>Course objective</td><td>Legal drafting skills are of utmost importance to all lawyers but are often difficult to master. Despite the challenges of mastering the art, the most effective lawyers are those who actively implement strategies to improve their drafting skills. Drafting requires a host of skills to be effective. This course will help the students to enhance legal drafting skills. It not only focuses on the theory of effective drafting guidelines but also provides relevant formats to assist in understanding practical application of concepts and develop necessary skills for drafting legal documents. The course is intended to improve the ability to draft quality legal documents.</td></tr>
<tr><td>Course outcome</td><td>CO1 Analyze and apply general principles of drafting and conveyancing.
CO2 Use effective writing techniques to draft different types of legal documents.
CO3 Draft different types of Deeds including deed of sale of land, mortgage deeds, license deeds, lease deeds, assignment deeds, trust deeds, partnership deeds and power of attorney deeds.
CO4 Draft different types of contracts including commercial agreements, professional services agreement, employment agreements franchise, agency, dealership and distributorship agreements, intellectual property rights agreements, arbitration agreements, foreign collaboration and joint ventures agreements and real estate and tenancy agreements.</td></tr>
<tr><td>Mapping between CO's with PSOs</td><td><table><tr><th></th><th>PSO1</th><th>PSO2</th><th>PSO3</th><th>PSO4</th><th>PSO5</th></tr><tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>Course Content</td><td>Unit I: General Principles of Drafting and Relevant Substantive Rules

Unit II: Pleadings Civil

Plaint, written statement, interlocutory application, original petition, affidavit, execution petition, memorandum of appeal and revision, petition under Art.226 and Art.32 of the Constitution of India.

Unit III: Pleadings Criminal Complaint, criminal miscellaneous petition, bail application, memorandum of appeal and revision.

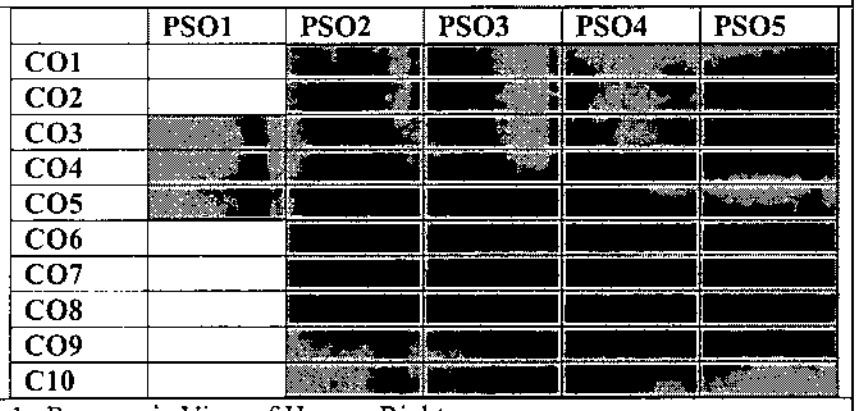
Unit IV: Conveyance Sale deed, mortgage deed, lease deed, gift deed, promissory note, power of attorney, will, trust deed.</td></tr>
</table>

	Unit V: Drafting Of Write petition and Public Interest Litigation petition.
Reference books	1. Srivastava R.D., Pleading, Drafting & Conveyancing, Central Law Agency, Allahabad. 2. Srivastava K.K., Law of Pleading Drafting & Conveyancing, Central Law Agency, Allahabad. 3. Chaturvedi R.N., Pleading Drafting &Conveyancing, Central Law Publications, Allahabad.
Teaching Methodology	The Lecture method as it is one of the most important ways of teaching through which a teacher develops an understanding of the subject to its core by explaining a concept through examples, thereby making it a student centric approach. The Socratic method of teaching which gives an opportunity to the students to ask questions to the teachers would be emphasized by the teachers. Similarly, a variety of approaches has been adopted to achieve the objectives of the programme with the use of audio-visual aids, charts, projectors, power point presentations, LCD projectors and all other tools to disseminate knowledge to the students.
Evaluation Method	1. Each Student shall undertake 15 practical exercises in drafting carrying 45 marks (3 marks for each exercise). 2. Each student shall undertake 15 practical exercises in Conveyancing carrying 45 marks (3 marks each). 3. At the end of the semester, the student shall appear for a viva voce, which shall carry 10 marks. 4. The above-mentioned drafting of Pleadings and Conveyancing exercises shall be in the handwriting of the students on one side of the bond size papers. The papers shall be bound accompanied by a certificate signed by the course teacher and the principal to the effect that it is the bonafide work of the concerned candidate. There shall be a cover and contents page.

Course: **4558: Human Rights Law and Procedure**

Course Code	**4558**
Course Title	**Human Rights Law and Procedure**
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	Human rights education teaches both about human rights and for Human rights. Its goal is to help people understand human rights, value human rights, and take responsibility for respecting, defending, and promoting human rights.
Course objective	Human rights is doubtless the major concern of all societies, developed as well as developing. Formerly, human rights were conceived rather

	narrowly as mere freedom form arbitrary government and classical constitutions provided guarantees of individual liberty or minority protection against the State in their constitutional bill of rights. It was realized later, and much more so over last fifty years since the end of the Second World war that the threats to liberty, equality and justice did not emanate from the State alone. Many nations of Asia and Africa came to nationhood during this period. Their assertion of sovereignty challenged many premises of international law which had been taken as established by the developed nations. These nations had to bring about their development and they needed capital. Foreign aid and foreign investments were invited but these could very well lead to their second subjugation. Poverty, ignorance, exploitation had to be fought at the global level. Development had to come without the sacrifice of human values. A greater awareness of human rights, not only obligations for creating an environment in which man could live with dignity was necessary. If law was to be real instrument of social engineering, the lawyers, judges and to conscientize future law teachers, researchers and activists about human rights. The focus of a course on human right must be on the national problems with an international or global perspective. Thoughts and ideas cannot be parochial or national. They are universal; But their articulation becomes meaningful only when they are seen in the context of local experience. The course content must be informed by transformational dimension. The study methodology must be macro at the thought level and micro at the experience level. While we must therefore focus on the local problems, we must not let the global perspective go out of sight. The world community concerns about human rights have been expressed through various conventions and treaties. On the national levels, they are contained in constitutional provisions such as directive principles of state policy, fundamental rights, fundamental duties and judicial, legislative as well as administrative strategies of reconstruction. Human rights acquire much more comprehensive and wider meaning. Human rights is an important parameter of a just society and future lawyers must be able to assess any programme of social transformation with reference to them.
Course outcome	**CO1** The focus of a course on Human Rights must be on the national problems with an international or global perspectives. **CO2** The course content must be informed by transformational dimension. **CO3** To understand the historical growth of the idea of human rights. **CO4** To demonstrate an awareness of the international context of human rights. **CO5** To understand the importance of National Standard of the Protection of Human Rights.

	CO6 It is important that student understand these rights and responsibilities. This will help to protect them, empower them and enable them to become responsible and active citizens. **CO7** Human Rights is an important parameter of a just society and future lawyer. **CO8** To demonstrate knowledge and understanding of the international human rights framework, its origins and justifying theories. **CO9** To demonstrate capacity to assess how specific human rights may be asserted, enforced or violated. **CO10** To evaluate the relationship between international and domestic law on human rights.
Mapping between CO's with PSOs	
Course Content	1. Panoramic View of Human Rights 1.1 Human Rights in Western and Non-Western Thought 1.2 Awareness of Human rights during nationalist movement 1.3 Universal Declaration of Human Rights, Constituent Assembly Debates, Part-III and Part-IV - Drafting process 1.4 Subsequent development of international law and the Position in India (eg. Convention on Racial Discrimination, Torture Convention, Women's Convention Environment and the two covenants ICCPR and the ICESCR. 1.5 Regional Conventions (eg. American, European, African etc.) 2. Fundamental Rights Jurisprudence as incorporating Directive Principles 2.1 The dichotomy of FR and DP 2.2 The interaction between FR and DP 2.3 Resultant expansion of Basic Needs oriented Human Rights in India 3. Human Rights and Vulnerable Groups. 3.1 Women and Children - basic rights 3.2 Disabled

	3.3 Tribals - Indigenous Peoples 3.4 Minorities 3.5 War Victims and Refugees 3.6 Criminal Justice System - Accused and Under trials - torture - third degree methods - justifications - Torture, Treatment and Punishment of Offenders 4. Enforcement of Human Rights 4.1 International organisation (UN) 4.2 National Mechanism (Legislative, Executive Judicial) - Attitudes and Approaches. 4.3 National Human Rights Commission - Commissions for Women, Minorities, Backward Classes, Scheduled Caste and Scheduled Tribes, Safai Karmacharies etc. 4.4 Right to Development of Individuals and Nations - Constitutional and legal changes in India from human right perspective 5. Peoples Participation in Protection and Promotion of Human Rights 5.1 International Organisations (eg. Amnesty International, Human Rights Watch, Asia Watch) Minority Rights Groups - Law Asia 5.2 Organisations National eg. PUCL, PUDR, Mahila Dakshata Samiti, Lawyers Collective, Bar Associations (National and International) 5.3 Development Agencies and Human Rights - Funding agencies and their role
Reference books	- SS.K. Avesti and R.P. Kataria : Law Relating to Human Rights, Chh. IV, V, VIII, XIV, XXIX and XXXIX, (2000) Orient, New Delhi. - Human Rights Watch Women's Rights Project : The Human Rights Watch Global Report on Women's Human Rights (2000), Oxford. - Ermacara, Nowak and Tretter : International Human Rights (1993), Sweet & Maxwell. - Wallace : International Human Rights : Text & Materials (1996), Sweet & Maxwell - Muntarbhorn : The Status of Refugees in Asia (1992), Oxford. - Frank Cass : Human Rights and Global Diversity (2001), London. - Nirmal C.J. (ed.) : Human Rights in India (2000), Oxford - Nirmal B.C.: The Right to Self-determination in International Law (1995), Deep & Deep. - Batra T.S. : Human Rights - A Critique - P.R. Gandhi: International Human Rights Documents (1999) Universal, Delhi. - National Human Right Commission: Annual reports, Bulletin. - Basu D.D. : Human Rights in Constitutional Law

	- M.P. Tandon : Public International Law - Paras Diwan : Human Rights and Law - P.R.P. Journal of Human Rights. - U.Baxi : Human Rights in a Post Human World (2009), Oxford. - : The Right to be Human (1986) - : The Crisis of the Indian Legal System (1982) - : The Future of Human Rights - S.C. Kashyap : Human Rights and Parliament - F. Lauterpacht : International Law and Human Rights (1968) - South Asia Human Rights Documentation Centre: Handbook of Human Rights and Criminal Justice System (2007) Oxford. - : Human Rights and Humanitarian Law - Developments in India and International Law (2007) Oxford. - : Introducing Human Rights (2006) Oxford - C. Raj Kumar and K. Chock lingam: Human Rights, Justice and Constitutional Empowerment, Oxford. - Journals of Indian Society of International Law
Teaching Methodology	Lecture method, Discussion method, Through power point, Through Book, Journals, Bare Act etc, Group discussion methods, Assignment method
Evaluation Method	Internal and External Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Course: **4559: Right to Information**

Course Code	4559
Course Title	Right to Information
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.) .
Effective from	2013-2014
Purpose of course	The objective of this paper is to impart knowledge among the students about the legal as well as administrative mechanism for the quick

<table>
<tr><td></td><td>protection of basic rights of human being in this fast period of Information technology.</td></tr>
<tr><td>Course objective</td><td>The objective of this paper is to impart knowledge among the students about the legal as well as administrative mechanism for the quick protection of basic rights of human being in this fast period of Information technology.</td></tr>
<tr><td>Course outcome</td><td>CO1 The focus of a course on Right to Information to impart knowledge among the students about the legal as well as administrative mechanism for the quick protection of basic rights of human being.

CO2 RTI is a multi-level prevention system designed for improving outcomes for all students.

CO3 The right to information RTI Act influences the people and impact on Indian Administration in greater transparency in functioning of public authorities.

CO4 To disclosure of information regarding government rules, regulation and decision, every public authority is mandated to maintain all records duly catalogued and indexed in a manner and the form which facilities the information right under the Act.</td></tr>
<tr><td>Mapping between CO's with PSOs</td><td><table><tr><th></th><th>PSO1</th><th>PSO2</th><th>PSO3</th><th>PSO4</th><th>PSO5</th></tr><tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>Course Content</td><td>Unit-1 Introduction to RTI Act
1. The evolution of the Right to Information in India.
2. The important terms used in the Act.
3. The salient features of the Act
4. Public Authorities and their Obligations under the Act
a. What is a Public Authority?
b. Who are the Public Authorities covered under the Act?
c. Which Public Authorities are exempted from the ambit of the Act
d. Obligations of Public Authorities

Unit-2 Role of Public Information Officers: PIOs and APIOs - Accepting Information
1. The requirement for designation of Information Officers - PIOs / APIOs - in public authorities
2. The specific Duties & Responsibilities of Information Officers.
3. The liabilities of a PIO for non-compliance with the provisions of the Act.</td></tr>
</table>

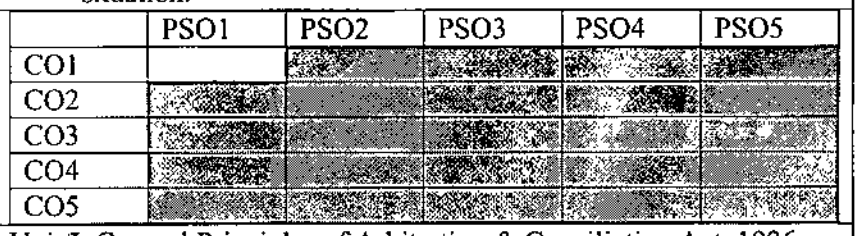
	4. How to accept information requests and assist citizens in making information requests? 5. What is the process for disposal of requests? 6. The time limits for disposal of information requests. 7. The fees and costs to be charged for providing information. 8. The grounds on which requests can be rejected and the procedure for such rejection Unit-3 Exemptions from Disclosure of Information, Partial Disclosure and" Third Party" Information 1. Specific provisions of the Act which exempt certain kinds of information - the classification of such exempted information. 2. Application of public interest test with respect to exempted information. 3. Grounds that allow for partial disclosure of information 4. The concept of 'Third Party' and the issues and considerations revolving around its involvement. Unit-4 The roles and responsibilities of Appellate Officers within Public Authorities. 1. The process involved in making first appeals to designated Appellate Officers. 2. Timelines for making a first appeal and disposal of the appeal 3. First Appeals and Appellate Officers - Important Provisions Unit-5 Information Commission: Powers and Functions 1. The Role and Responsibilities of the Information Commissions. 2. The relevant provisions in the RTI Act dealing with Complaints to the Information Commission and the specifications thereof. 3. The "Second Appeal" process and the Commissions' mandate for the same. 4. The power of Information Commissions with regard to enforcing compliance of public authorities with the provisions of the RTI Act, imposing penalty / recommending disciplinary action against erring PIOs etc.
Reference books	Suggested Readings: 1. Justice P.S. Narayan, G.B. Reddy, Right to Information and Law, Vikas Publishing House, Delhi. 2. R.K. Verma, Right to Information Law and Practice, Jain Publishing Agency, Delhi. 3. Dr. D.N. Barowalia, Commentary on the Right to Information, Universal, Law Publication Delhi (2007) 4. Right to Information Act, 2000

Teaching Methodology	Lecture method, discussion method and PPT presentation
Evaluation Method	Internal and External Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Course: 4560: Alternate Dispute Resolution

Course Code	4560
Course Title	Alternate Dispute Resolution
Credit	18
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	The objective of this course is to provide information regarding alternate methods to resolve negotiation disputes
Course objective	The major concern of law is conflict resolution. Familiarization with the modalities and techniques of resolution of conflict is a necessary component in the endeavours of developing expertise in juridical exercise. The traditional justice delivery system through adjudication by courts had already given way to a large extent too many an alternative mode of dispute resolution in the common law countries. The advent of globalisation has enthused this transformation everywhere. The study of ADR is highly significant in moulding the students of law to act as soldiers of justice in the everchanging socio-economic scenario. The course aims to give the students an insight into the processes of arbitration, conciliation and mediation in areas where the traditional judicial system had its sway in the past and in the new areas of conflicts that demand resolution by alternative methods. No doubt, the course has to be taught with comparative and international perspectives with a view to bringing out the essential awareness of the national and international systems emerging at the present context.
Course outcome	**CO1** Students shall be in a position to know litigation aspect and non-litigation aspects-its consequences **CO2** Students can get the basics of mediation and negotiation **CO3** Students will know about the drafting of arbitration agreement, and arbitration clause and its importance

	CO4 Students can developed skills in conciliation and mediation **CO5** Students have knowledge of win-win situation than win-lose situation.
Mapping between CO's with PSOs	
Course Content	Unit I: General Principles of Arbitration & Conciliation Act, 1996 1. Meaning , Kinds and Advantages 2. Matter referable/non referable to Arbitration 3. Role of Court in referring a dispute to Arbitration Unit II: Composition & Jurisdiction of Arbitral Tribunal & Arbitral Proceedings 1. Number of Arbitrators 2. Appointment of Arbitrator 3. Pecuniary Jurisdiction 4. Jurisdiction of Arbitrators 5. Disqualification of Arbitrators 6. Setting-aside of Award 7. Powers of Arbitrators/Tribunals Unit III: Foreign Awards 1. Meaning and Definition of Foreign Award 2. Powers of Judicial Authority to refer matters to Arbitration 3. Scope and Enforcement of Foreign Award Unit IV: Conciliation 1. Introduction, Numbers of Conciliators 2. Appointments of Conciliators 3. Role of Conciliators 4. Settlement of disputes and status of settlement agreement Unit V: Alternative Means of Settlement of Disputes 1. Mediation 2. Conciliation 3. Arbitration 4. Lok Adalat Leading Cases for Detailed Study *Arain & Co.Vs Union Of India *B.Ramaswamy Vs B.Rangaswamycmc Ltd.Vs Unit Trust Of India *Doypack System Pvt.Ltd. Vs Union Of India

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1					
CO2					
CO3					
CO4					
CO5					

	*Food Corporation Of India Vs Indian Council Of Arbitration & Others
Reference books	1. Singh Avtar, Law of Arbitration and Conciliation, Easter Book Company, Lucknow 2. Paranjape N.V., Law relating to Arbitration and Canciliation in India, Central Law Agency,Allahabad 3. Mishra S.S., Arbitration and Canciliation in India, Gyan Book All Indian Publication, Delhi 4. Tripathi S.C., Arbitration and Canciliation, Gyan Book All Indian Publication, Delhi
Teaching Methodology	Lecture method, discussion method and PPT presentation
Evaluation Method	Internal and External Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Course: **4561: Interpretation of Statutes and Principles of Legislation**

Course Code	4561
Course Title	Interpretation of Statutes and Principles of Legislation
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	September 2013
Purpose of course	To learn about the methodology involved in the interpretation of statutes and the principles evolved by the Courts for implementation of legislative intent.
Course objective	To introduce the students to various rules of interpretation of laws and understand the correct methodology to fulfill the intention of the legislature.
Course outcome	**CO1:** To know what are the techniques adopted by courts in construing statutes. And the importance of the law making process in the present context **CO2:** To know what are the matters to be reckoned with by legislature while enacting laws. **CO3:** To understand and analyze the judicial interpretation, construction of words, phrases and expressions

Mapping between CO's with PSOs			PSO1	PSO 2	PSO3	PSO4	PSO5
		CO1					
		CO2					
		CO3					
Course Content	1. Principles of Legislation 1.1 Law making - the legislature, executive and judiciary 1.2 Principles of utility - relevance of John Rawls and Robert Nozick – individual interest and community interest - operation of principles upon legislation. 1.3 Distinction between legislation and morals. 2. Interpretation : General Rules of Construction 2.1 Meaning of the term 'statute' - commencement, operation and repeal of statutes purpose of interpretation of statutes. 2.2 General Rules of interpretation 2.3 General Clauses Act-1897 – Utility 3. Interpretation : Aids 3.1 Internal aids - title and preamble - heading and marginal notes - sections and subsections - punctuation marks - illustrations, exceptions, provisions and saving clauses - Schedules - Non-obstante clause 3.2 External aids - dictionaries - translations - Travaux preparatiores - statutes in pari materia - Contemporanea Exposito - debates, inquiry commissions, reports and Law Commission Reports 4. Rules of Statutory Interpretation 4.1 Primary rules literal rule Golden rule, Mischief rule, Rule of Harmonious construction 4.2 Secondary Rules - Noscitur a sociis, Ejusdem generis, Reddando singular singulis 5. Presumptions in Statutory interpretation 5.1 Validity of Statutes 5.2 Territoriality in operation 5.3 Presumption as to jurisdiction 5.4 Presumption against inconvenience and absurdity 5.5 Presumption against injustice, impairing obligations or permitting advantage from one's own wrong 5.6 Prospective operation and Prospective over - ruling of statute 6. Interpretation with reference to the subject matter and purpose 6.1 Restrictive and beneficial construction – taxation statutes, penal statutes, welfare legislations. 6.2 Interpretation of substantive and adjunctival statutes						

	6.3 Interpretation of directory and mandatory provisions 6.4 Interpretation of enabling statutes 6.5 Interpretation of codifying and consolidating statutes 6.6 Interpretation of statutes conferring rights 6.7 Interpretation of statutes conferring powers. 7. Principles of Constitutional Interpretation 7.1 Harmonious Construction 7.2 Pith and Substance 7.3 Colourable legislation 7.4 Ancilliary Powers 7.5 "Occupied field" 7.6 Residuary Powers 7.7 Doctrine of repugnancy 8. Maxims of Statutory Interpretation 8.1 Delegatus non potest delegare 8.2 Ex-pressio unius exclusio alterius 8.3 Generalia specialibus non derogant 8.4 In pari delicto potior est conditio possidentis 8.5 In pari delicto potior est conditio defendentis 8.6 Ultres valet potior quam pereat 8.7 Expressum fait cessare tacitum 8.8 In bonam partem
Reference books	1. G.P.Singh : Principles of Statutory Interpretation, (7th Edition) 1999, Wadhwa, Nagpur 2. Maxwell on the Interpretation of Statutes (1976) N.M. Tripathi, Bombay. 3. N.S. Bindras's : Interpretation of Statutes (1997) The Law Book Co., Allahabad. 4. V.Sarathi : Interpretation of Statutes Eastern, Lucknow 5. M.P. Jain : Constitutional Law of India (1994) Wadhwa & Co., 6. M.P. Jain : V.N. Shukla's Constitution of India, (1994) Eastern, Lucknow 7. U.Baxi : Introduction to Justice K.K.Mathew's Democracy Equality and Freedom (1978) Eastern, Lucknow 8. P.K. Tripathi : Spotlight on Constitutional Interpretation 9. H.M. Seervai : Constitutional Law of India (1st chapter) 10. M.P. Tandon : Interpretation of Statutes 11. Relevant issues of the Journal of Indian Law Institute
Teaching Methodology	The Lecture method as it is one of the most important ways of teaching through which a teacher develops an understanding of the subject to its core by explaining a concept through examples, thereby making it a student centric approach.

	The Socratic method of teaching which gives an opportunity to the students to ask questions to the teachers would be emphasized by the teachers. Similarly, a variety of approaches has been adopted to achieve the objectives of the programme with the use of audio-visual aids, charts, projectors, power point presentations, LCD projectors and all other tools to disseminate knowledge to the students.
Evaluation Method	Internal and External Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Semester 10								
Course Code	**Title**	**Teaching per week**		**Course Credit**	**University Examination**		**Internal Marks**	**Total Marks**
		Theory	**Practical**		**Duration**	**Marks**		
	Moot Court Exercise and Internship	6	0	6				100
4564	Criminal Procedure Code	6	0	6	3hrs	70	30	100
4565	Gender Justice and Feminist Jurisprudence	6	0	6	3hrs	70	30	100
4566	Land Laws	6	0	6	3hrs	70	30	100
4567	Professional Ethics, etc.	6	0	6	3hrs	70	30	100

Course: Moot Court Exercise and Internship

Course Code	
Course Title	Moot Court Exercise and Internship
Credit	18
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	September 2013
Purpose of course	The objective of this paper is to hone advocacy skills in the students

<table>
<tr><td>Course objective</td><td>The term 'moot', according to Oxford and Chambers dictionary means, to propose for discussion; argue for practice; a matter about which there may be disagreement or uncertainly. The Course will help in developing fluency and clear assertion, and also gives one experience in the art of persuasion, and of putting a case concisely and intelligibly. The course not only gives one a picture of practice in court procedures but also helps to develop the self-confidence that every advocate should possess.</td></tr>
<tr><td>Course outcome</td><td>CO1 Enhance analytical as well as critical thinking of Students over interesting and contemporary legal issues,
CO2 Demonstrate a thorough and contextual knowledge of the various laws particularly in its application to real and hypothetical legal problems.
CO3 Acquire skill in advocacy, legal research and writing skills.
CO4 Gain interest in advocacy and competence as an advocate.</td></tr>
<tr><td>Mapping between CO's with PSOs</td><td>
<table>
<tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td></tr>
<tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO3</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>CO4</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Course Content</td><td>MOOT COURT (30 marks)
1. Each student shall participate in at least 3 moot courts.
2. Each Moot court exercise shall carry 10 marks(divided as under):
a. Oral advocacy: 5 marks.
b. Written submission: 5 marks.

OBSERVATION OF TRIAL (30 marks)
1. Each student shall attend trial in two cases one civil and one criminal in the course of last two or three years.
2. The student shall maintain a record and enter the various steps observed during their attendance on different days in the court assignment.

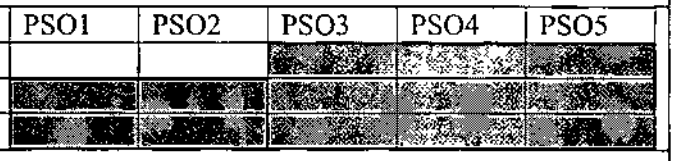
CLIENT INTERVIEWING (30 marks)
Each student shall observe two session of client interviewing at the Lawyer's Office/Legal Aid Office and record the proceedings in a diary, which shall carry 15 marks.
Each student shall further observe the preparation of documents and court papers by the Advocate and the procedure for the filing of the suit/petition. This shall be recorded in a diary, which shall carry 15 marks.
VIVA VOCE (10 Marks)
At the end of the semester, the student shall appear for a viva voce, which shall carry 10 marks.</td></tr>
<tr><td>Reference books</td><td>Agrawal Nomita Moot Court
Gupta Sant Prasad Moot Court</td></tr>
</table>

	Mishra Omprakash Moot Court
Teaching Methodology	The Lecture method as it is one of the most important ways of teaching through which a teacher develops an understanding of the subject to its core by explaining a concept through examples, thereby making it a student centric approach. The Socratic method of teaching which gives an opportunity to the students to ask questions to the teachers would be emphasized by the teachers. Similarly, a variety of approaches has been adopted to achieve the objectives of the programme with the use of audio-visual aids, charts, projectors, power point presentations, LCD projectors and all other tools to disseminate knowledge to the students.
Evaluation Method	

Moot Court	30 Marks
Observation of Trial	30 Marks
Client Interviewing	30 Marks
Viva Voce	10 Marks
Total	100 marks

Course: 4564: Criminal Procedure Code

Course Code	4564
Course Title	Criminal Procedure Code
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	To understand the important provisions of Criminal procedure code
Course objective	The criminal process involves increasing expenditure of government resources. At the same time it confronts a crisis of intrusion into individual rights in order to protect the common weal. Obviously, criminal procedure has to be just, fair and reasonable to the accused as well as to the victims. Undoubtedly the process is to be carried out in an objective manner. Criminal procedure, thus, makes a balance of conflicting interests. This imposes a duty upon those connected with the working of the criminal process to abide by the law and to exercise discretion conferred on them in the best manner. Code of Criminal Procedure, originally enacted years ago, had undergone many trials and experiments, too enormous to be placed within a class room discussion. However, the students should obtain a fair idea how the code works as the main spring of the criminal justice delivery system and should be exposed to the significant riddles of the procedure.
Course outcome	CO1The system of criminal prosecution in India: who prosecutes; Process to Compel Appearance of Person, Process to Compel Production of Things, Right to speedy trial etc.

	CO2 The legal rules relating to arrest and bail under the Criminal Procedure Act, The rights of arrested persons and to apply such rules in a factual scenario. CO3 Describe principles applicable to the right to legal representation in Indian criminal trials and to apply such principles in a factual scenario.
Mapping between CO's with PSOs	
Course Content	**1. Introductory** 1.1 The rational of Criminal Procedure: the importance of fair trial 1.2 Constitutional Perspectives 1.3 The variety of Criminal Procedure (the class should examine in particular the Procedure of trial for Specific offences especially, offences under the Prevention of Corruption Act and the Narcotic Drugs and Psychotropic Substances Act) 1.4 The organization of Police, Prosecutor, defence counsel and prison authorities and their duties, functions and powers **2. Pre-trial process: arrest** 2.1 The distinction between cognizable and non-cognizable offences: relevance and adequacy problem 2.2 Steps to ensure accuser's presence at trial: warrant and summons. 2.3 Arrest with and without warrant (Section 70-73 and 41) 2.4 The absconder status (Section 82, 83, 84 and 85) 2.5 Right of the arrested person 2.6 Right to know grounds of arrest (Section 50(1), 55, 75) 2.7 Right to be taken to magistrate without delay (Section 56, 57) 2.8 Right of not being detained for more than twenty-hours (Section 57): 2.9. Article 22(2) of the Constitution of India 2.9 Right to consult legal practitioner legal aid and the right to be told of rights to tall 2.10 Right to be examined by medical practitioner (Section 54) **3. Pre-trial process: Search and Seizure** 3.1 Search warrant (Section 83, 94, 97, 98) and searches without warrant (Section 103) 32 Police search during investigation (Section 165, 166, 153) 3.3 General principles of search (Section 100) 3.4 Seizure (Section 102) 3.5 Constitutional aspects of validity of search and seizure proceeding **4. Pre-trial Process; FIR** 4.1 F.I.R. (Section 154) 4.2 Evidentiary value of F.I.R (See Sections 145 and 157 of Evidence Act) **5. Pre-trial Process: Magisterial Powers to take Cognizance** **6. Trial process** 6.1.1 Commencement of proceedings: (Section 200,201,202) 6.1.2 Dismissal of complaints (Section 203,204) 6.1.3 Bail: concept, purpose: constitutional overtones

	6.1.3.1 Bailable and Non-Bailable offences (Section 436,437,439) 6.1.3.2 Cancellation of bail (Section 437(5)) 6.1.3.3 Anticipatory bail (Section 438) 6.1.3.4 Appellate hail powers (Section 389(1), 395(1), 4375)) 6.1.3.5 General principles concerning bond (Section 441-450). **7. Fair Trial** 7.1 Conception of fair trial 7.2 Presumption of innocence. 7.3 Venue of trial 7.4 Right of the accused to know the accusation (Section 221-24) 7.5 The right must generally be held in the accused's presence (Section 221-224) 7.6 Right of cross examination and offering evidence in defence: the accused's Statement 7.7 Right to speedy trial **8. Charge** 8.1 Palming of charge 8.2 Form and content of charge (Section 211, 212, 216) 8.3 Separate charges for distinct offence (Section 218, 219, 220, 221, 223) 8.4 Discharge- pre-charge evidence **9. Preliminary pleas to bar the trial** 9.1 Jurisdiction (Section 26, 177-188, 461, 462, 479) 9.2 Time limitations: rationale and scope (Section 468-473) 9.3 Pleas of autrefois acquit and autrefois convict (Section 300, 22D) 9.4 Issue-Estoppel 9.5 Compounding of offences **10. Trial before a Court of Sessions: Procedural Steps and Substantive Rights.** **11. Judgment** 11.1 Form and content (Section 354) 11.2 Summary trial 11.3 Post-conviction orders in lieu of punishment: emerging penal policy (Section 360, 361, 31) 11.4 Compensation and cost (Section 357, 358) 11.5 Modes of providing judgement (Section 353, 362, 363) **12. Appeal, Review, Revision** 12.1 No appeal in certain cases (Section 372, 375, 375) 12.2 The rationale of appeals, review, revision, 12.3 The multiple range of appellate remedies 12.3.1 Supreme Court of India (Section 374, 379, Artic. 31, 132, 134, 136) 123.2 High Court (Section 374) 12.3.3 Sessions court (Section 374) 12.3.4 Special right to appeal (Section 380) 12.3.5 Government appeal against sentencing (Section 377-378) 12.3.6 Judicial power in disposal of appeals (Section 368) 12.3.7 Legal aid in appeals 12.4 Revisional Jurisdiction (Section 397-405) 12.5 Transfer of cases (Section 406.407) **13. Reform of Criminal Procedure**

Reference books	– Ratanlal - Dhirajlal: Criminal Procedure Code (1999) Universal, Delhi – K .Chandrashekhan Pillai (ed.) Kelkar Lectures on Criminal Procedure(1998), Eastern, Lucknow – Principe: Commentaries on the Code of Criminal Procedure, 2 vol.(2000) Universal, Delhi. – Woodroff: Commentaries on Code of Criminal Procedure, 2 vol (2000), Universal, Delhi. – K. Chandrashakhan Pillai: Kelkar's Outlines of Criminal Procedure(2001), Eastern, Lucknow. – Kelkar Criminal Procedure Code – Malik and Malik Supreme citation on Criminal Procedure – O.P Shrivastava's Principals of Criminal law – Vibhute K.I Criminal Justice: A human rights perspective of the Criminal Justice Process in India, – Myneni S.R Criminal Procedure Code – Basu D.D Criminal Procedure Code – Tandon Criminal Procedure Code
Teaching Methodology	Lecture method, discussion method and PPT presentation
Evaluation Method	Internal and External Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Course: 4565: Gender Justice and Feminist Jurisprudence

Course Code	4565
Course Title	Gender Justice and Feminist Jurisprudence
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	The course will concentrate on gender perspectives and study how the legal provisions continue the considerable bias and help in the continuance of the patriarchal values, which have been a part of our society.
Course objective	The need to study gender justice as a special subject is because the constitutional guarantees have not achieved the necessary results. The Constitution guarantees equality of status and opportunity and no

<table>
<tr><td></td><td>discrimination on the ground of sex. These fundamental rights did not preclude having special provisions for women.
The planners and policy makers treated women as beneficiaries of welfare measures. The hope was that the benefits of development would percolate below to every disadvantaged member of the society including women, therefore no exclusive efforts were made.
By the 6th Plan it had been realised that special efforts are required to be made to integrate women into the development process. The Plan therefore for the first time had a chapter devoted to Women and Development.
The course will study the legal provisions with specific emphasis on offences committed against women and on empowerment of women.</td></tr>
<tr><td>Course outcome</td><td>CO1 Apply a systematic approach to eliminate on the ideas in the institutions which marginalize, subordinate and accord secondary citizenship to women and underestimate or make the women's contribution invisible.
CO2 Provides consultancy to Identify and discuss issues related to women and child development and inculcates entrepreneurial spirit among the girls, rural and urban grass root women.</td></tr>
<tr><td>Mapping between CO's with PSOs</td><td><table><tr><td></td><td>PSO1</td><td>PSO2</td><td>PSO3</td><td>PSO4</td><td>PSO5</td></tr><tr><td>CO1</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CO2</td><td></td><td></td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>Course Content</td><td>1. Crimes against women
1.1 Introduction
1.2 Domestic Violence
1.3 Dowry harassment
1.4 Sexual offences - Rape, Outraging modesty of woman, kidnapping.
1.5 Sexual harassment of women at workplace
1.6 Other offences - Female infanticide and female foeticide, Sati, prostitution, indecent representation of women, pornography

2. Constitutional Provisions and Policy
2.1 Preamble - Equality of Status and Opportunity
2.2 Fundamental Rights and guarantees Articles 14, 15, 16, 21, 22, 24, 39, 39A

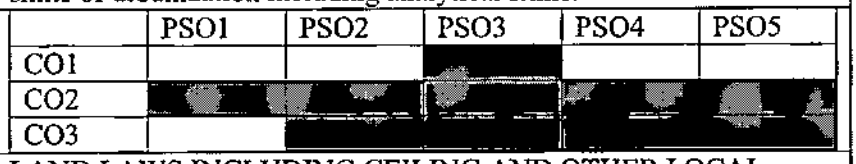
3. Empowerment of women
3.1 Concept and Method
3.2 Human Rights - under domestic and international law
3.3 National Commission for Women - formation and functions
3.4 Uniform Civil Code, Gender Justice and Discriminatory provisions in Family Laws
3.5 Reservation for women
3.5.1 In local self government bodies</td></tr>
</table>

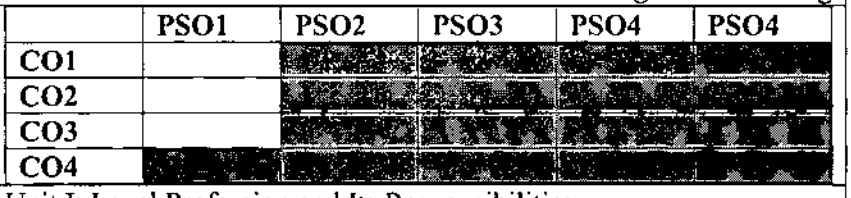
	3.5.2 In legislature - Proposed Amendment and Debates 3.6 Women and Employment 3.6.1 Laws to protect women and her labour 3.6.2 Maternity Benefit Act, Factories Act, Equal Remuneration Act. 3.7 Matrimonial Property
Reference books	- Report of the Committee on the Status of Women, "Towards Equality" 1975 Government of India - The Law Commission of India Report, 1988 - Anwar Yaquin & Badar Anwal : Protection of Women under the Law - M.J. Antony : Women's Rights - Anjani Kant : Women and Law - Hingorani (ed). : Gandhi on Women - 6th Plan and 7th Plan, Chapter on Women and Development Chapter on Socio-Economic Programmes for women - Relevant Statutory Provisions of Family Laws, Criminal Laws and Labour Laws - Relevant Journals of Indian Law Institute and Annual Survey of Indian Law
Teaching Methodology	Lecture method, discussion method and PPT presentation methods.
Evaluation Method	Internal and External Assessment

Internal Written Test (Compulsory)	15 Marks
Attendance	05 Marks
Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
External University exams	70 marks
Total	100 marks

Course: 4566: Land Laws

Course Code	4566
Course Title	**Land Laws**
Credit	6
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2016
Purpose of course	To familiarize the student with the land laws of their state

Course objective	The legislative power to make laws relating to land and land ceiling is in the state list. Different states have enacted their own laws on this subject. The Constitutional perspectives relating to this subjects have to be taught as an essential part of this course. The provisions in the Constitution in Part III, IV and XII as well as those in Schedule VII relating to distribution of legislative powers over land are essentially to be taught with emphasis. The law relating to land in the state where the students take the course will have to be selected by the University Boards of Studies as part of the syllabus for this paper. This paper comprises of 84 units of one hour duration.
Course outcome	**CO1**.Identify and describe the revenue board courts and its function for a appeal revision and review. **CO2** Demonstrate an understanding of the legal and regulatory framework for tribunals and the regulatory rules. **CO3** Demonstrate an understanding of the necessary professional skills of urbanization including analytical skills.
Mapping between CO's with PSOs	
Course Content	LAND LAWS INCLUDING CEILING AND OTHER LOCAL LAWS (1) Historical Background (2) Revenue Code and Revenue Rules (I) Revenue officers and Courts Jurisdiction, Power and Functions (II) Survey and Settlement (III) Assessment of Land Revenue (IV) Tenure Holder – His rights and obligations (V) Lease – Tenant (VI) Devolution of Rights in Land (3) Ceiling Act – Agricultural and land Ceiling (4) Consolidation Statutory Legislations : (1) Gujarat State Revenue Code and Gujarat Land Revenue Rules-1879 (2) Land Acquisition Act-1894 (1984 – Amended) (3) The Bombay Tenancy and Agricultural Land Act-1948 (4) The Mamalatdar Courts Act. (5) Agricultural ceiling
Reference books	(1) Annual Survey of Indian Law – Volume Relevant Section on "Law and Agcarian Reforms". (2) Land Tenure in India Vol.-3 (By : B.H. Eodenpowell)
Teaching Methodology	Lecture method, discussion method and PPT presentation method

	f) What ethical standards are expected of the lawyers and how are such standards enforced?
Course outcome	**CO1** Familiarize the students with the legal provisions, guidelines, and judicial decisions on the subject of professional conduct for lawyers **CO2** To acquaint them with the opinions of the Bar Council of India on professional misconduct **CO3** To teach them the basics of professional accountancy **CO4** To Train them in the skills of client interviewing and counseling
Mapping between CO's with PSOs	
Course Content	Unit I: Legal Profession and Its Responsibilities 1. Meaning and necessity of Professional Ethics 2. Standards of Professional Ethics and Etiquette 3. Punishment for Professional and other Misconduct 4. Bar Council of India, State Bar Council Unit II: Contempt Law and Practice 1. Contempt of Court- Its meaning and Nature 2. Kinds of Contempt a. Criminal Contempt b. Civil Contempt 3. Contempt by Lawyers 4. Contempt by Judges, Magistrates or other persons acting judicially 5. Contempt by State, Corporate bodies & other officers Unit III: Bench-Bar Relations 1. Statues and Virtues of Advocate 2. Art of advocacy 3. Art of Oratory 4. Presenting citation of cases 5. Seven lamps of advocacy 6. Duties towards clients Unit IV: (I) Selected Major Judgments of the Supreme Court 1. Sardul Singh v. Pritam Singh & others (1999) 3 SCC 52 2. Re Mr Nand Lal Balwani etc.,AIR 1999 SC 1300 3. Prahlad Saran Gupta v. Bar Council of India, (1997) 3 SCC 585 4. Hikmat Ali v. Ishwar Prasad Arya & others, AIR 1997 SC 864 5. P.D. Gupta v. Ram Murti and Another, AIR 1998 SC 283 6. Chandra Shekhar Soni v. Bar Council of Rajasthan & Others, AIR 1983 SC 1012 7. V.C. Rangadurai v. D. Gopalan & Others, AIR 1979 SC 281 8. Harish Chandra Tewari v. Baiju,(2002) 2 SCC 67 9. Re Vinay Chandra Mishra, AIR 1995 SC 2348 pg. 337 (SP)

Evaluation Method	Internal and External Assessment	
	Internal Written Test (Compulsory)	15 Marks
	Attendance	05 Marks
	Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course	10 Marks
	External University exams	70 marks
	Total	100 marks

Course: 4567: Professional Ethics etc.

Course Code	4567
Course Title	Professional Ethics etc.
Credit	18
Teaching per week	6 hrs
Minimum weeks per semester	18 weeks (Including classwork, examination, preparation, holidays etc.)
Effective from	2013-2014
Purpose of course	The legal profession is undergoing a significant transition at the turn of the 21st century. The profession is faced with new challenges like globalization of the legal profession, legal outsourcing, transnational law firms, human rights advocacy etc. At this juncture the necessity of course on legal practice and professional ethics has become a priority for the emerging lawyers. The purpose of this course is to give students an understanding of the importance of ethics in the legal profession and to make them appreciate the core values of professional conduct in the practice of law. It is to help the students understand the laws governing legal practice in India and the importance thereof.
Course objective	Lawyers are supposed to perform an important function of helping people to abide by the law. They are officers of courts and supposed to help them arrive at the truth and just resolution of disputes. In the successful operation of the lawyers to the cause of Justice, various ethical questions arise. The objective of this paper is to acquaint the student with: a) Social background of the lawyers; b) How far career opportunities in the profession are determined by their caste/class/sex context and public relations backgrounds? c) How for legal profession is apprised of the law as an instrument of social change? d) How far legal profession is apprised of the law as an instrument of social change? e) How far it can participate meaningfully in the transformation effort?

<table>
<tr><td></td><td>10. Dr. D.C. Saxena v. Hon'ble the Chief Justice of India, AIR 1996 SC 2481 pg 347 (SP)
(II) 50 selected opinions of the disciplinary committees of Bar Councils.
Unit V: Professional Accounting System
1. Need for maintenance of accounts- Books of accounts that need to be maintained- Cash Book, journal and ledger.
2. Elementary aspects of bookkeeping: Meaning, object, journal, double entry system, closing of accounts
3. The cash and bulk transaction- The Cash book- Journal proper especially with reference to client's accounts- Ledger, Trial balance and final accounts- Commercial mathematics.</td></tr>
<tr><td>Reference books</td><td>1. Rai Kailash, Legal Ethics, Central Law Publications.
2. Gupta S.P., Professional Ethics Accountancy for Lawyer and Bench - Bar Relation,JBA Publishers.
3. K.V. Krishnaswamy Iyer, Professional Conduct and Advocacy</td></tr>
<tr><td>Teaching Methodology</td><td>The teaching methodology adopted for this course is theoretical discussions of the fundamental principles of ethics and various aspects of professional dilemma and challenges. It is largely based on reading of Advocates Act 1961, Contempt of Court Act 1971, case laws and secondary materials.</td></tr>
<tr><td>Evaluation Method</td><td>Internal Assessment
<table>
<tr><td>Internal Written Test (Compulsory)</td><td>15 Marks</td></tr>
<tr><td>Attendance</td><td>05 Marks</td></tr>
<tr><td>Assignment / Tutorial / Group Discussion / Project Work / Field Work / Presentation / Seminar / Library exercise / Clinical Training / Moot training / any other Exercise appropriate for the Concerned Course</td><td>10 Marks</td></tr>
<tr><td>External University exams</td><td>70 marks</td></tr>
<tr><td>Total</td><td>100 marks</td></tr>
</table></td></tr>
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એકેડમિક કાઉન્સિલ તા.05/02/2022
આઇટમ.....૨૫.....બિડાણ/પરિશિષ્ટ.....3V

Form - CC - 01

(Certification Course Proposal Form)

Title of Certification Course: DATA HANDLING WITH R

Name of Institution : VIDYABHARTI TRUST COLLEGE OF BUSINESS, COMPUTER - SCIENCE & RESEARCH

Faculty Name: Computer Science and IT

Name of Course In Charge : Yatin H Patel

Course Credit for Proposed Course : 2 Credits

Total Course Hour : 30 Hour

Objective of the Course :	R is a programming language for statistical computing and graphics that you can use to clean, analyze, and graph your data. It is widely used by researchers from diverse disciplines to estimate and display results and by teachers of statistics and research methods.
Pre - requisite :	• Knowledge of statistics theory in mathematics. • You should have solid understanding of statistics in mathematics. • Understanding of various types of graphs for data representation. • Computer and R Software
Expected Outcomes of the Course :	• Navigate and optimize the R integrated development environment (IDE) R Studio. • Install and load add-in packages. • Import external data into R for data processing and statistical analysis. • Learn the main R data structures – vector and data frame. • Compute basic summary statistics.
Course Name (Theory/ Practical/ Field based or Blended)	Theory and Practical
Eligibility Criteria of Participants:	12th Pass with Basic Computer Knowledge
Total Maximum Seats allotted for the Course :	75 Seats Per Division
Course Syllabus	Syllabus Attached
Exam Pattern : (MCQ/ Written / Practical/Blended)	Blended

Title:	**DATA HANDLING WITH R**
Duration:	30 hours
Course Credits:	2
Eligibility Criteria:	12th Pass with Basic Computer Knowledge
Type of Course:	Multi Disciplinary
Mode of Lectures:	Blended
Medium of Instruction:	English
Pre-requisite:	• Knowledge of statistics theory in mathematics. • You should have solid understanding of statistics in mathematics. • Understanding of various types of graphs for data representation. • Computer and R Software
Evaluation Method:	Blended
Course Outcome	• Navigate and optimize the R integrated development environment (IDE) R Studio. • Install and load add-in packages. • Import external data into R for data processing and statistical analysis. • Learn the main R data structures – vector and data frame. • Compute basic summary statistics.
Course Objective	R is a programming language for statistical computing and graphics that you can use to clean, analyze, and graph your data. It is widely used by researchers from diverse disciplines to estimate and display results and by teachers of statistics and research methods.
Course Content:	**Unit 1: R – OVERVIEW** 1.1 Evolution of R 1.2 Features of R **Unit 2: R – ENVIRONMENT SETUP** 2.1 Try it option online 2.2 Local Environment Setup **Unit 3: R – BASIC SYNTAX** 3.1 R Command Prompt 3.2 R Script File 3.3 Comment **Unit 4: R - DATA TYPES** 4.1 Vectors 4.2 Lists 4.3 Matrices 4.4 Arrays 4.5 Factors

	4.6 Data Frames **Unit 5: R – VARIABLES** 5.1 Variable Assignment 5.2 Data type of a variable 5.3 Finding Variables 5.4 Deleting Variables **Unit 6: R – OPERATORS** 6.1 Types of Operator 6.2 Arithmetic Operator 6.3 Relational Operator 6.4 Logical Operator 6.5 Assignment Operator 6.6 Miscellaneous Operators **Unit 7: R – DECISION MAKING** 7.1 R - If Statement 7.2 R – If...Else Statement 7.3 The if...else if...else Statement 7.4 R – Switch Statement **Unit 8: R – LOOPS** 8.1 R - Repeat Loop 8.2 R - While Loop 8.3 R – For Loop 8.4. Loop Control Statements 8.4.1 R – Break Statement 8.4.2 R – Next Statement **Unit 9: R – FUNCTION** 9.1 Function Definition 9.2 Function Components 9.3 Built – in Function 9.4 User – defined Function 9.5 Calling a Function 9.6 Lazy Evaluation of Function **Unit 10: R – STRINGS** 10.1 Rules Applied in String Construction 10.2 String Manipulation **Unit 11: R – VECTORS** 11.1 Vector Creation 11.2 Accessing Vector Elements 11.3 Vector Manipulation **Unit 12: R – LISTS** 12.1Creating a List 12.2 Naming List Elements 12.3Accessing List Elements 12.4Manipulating List Elements

	12.5Merging Lists 12.6 Converting List to Vector **Unit 13: R – MATRICES** 13.1 Accessing Elements of a Matrix 13.2 Matrix Computations **Unit 14: R – ARRAYS** 14.1Naming Columns and Rows 14.2 Accessing Array Elements 14.3 Manipulating Array Elements 14.4 Calculations Across Array Elements **Unit 15: R – FACTORS** 15.1 Factors in Data Frame 15.2 Changing the Order of Levels 15.3 Generating Factor Levels **Unit 16: R – DATA FRAMES** 16.1 Extract Data from Data Frame 16.2 Expand Data Frame
Reference Books:	1.R for Data Science: Import, Tidy, Transform, Visualize, and Model Data ------ by Hadley Wickham (Author), Garrett Grolemund 2. The Book of R: A First Course in Programming and Statistics by Tilman M. Davies 3. R for Everyone: Advanced Analytics and Graphics --- by Jared lander

Form - CC - 01

(Certification Course Proposal Form)

Title of Certification Course: DATA VISUALIZATION WITH R

Name of Institution : VIDYABHARTI TRUST COLLEGE OF BUSINESS, COMPUTER - SCIENCE & RESEARCH

Faculty Name: Computer Science and IT

Name of Course In Charge : Yatin H Patel

Course Credit for Proposed Course : 2 Credits

Total Course Hour : 30 Hour

Objective of the Course :	R is a programming language for statistical computing and graphics that you can use to clean, analyze, and graph your data. It is widely used by researchers from diverse disciplines to estimate and display results and by teachers of statistics and research methods.
Pre - requisite :	• Knowledge of statistics theory in mathematics. • You should have solid understanding of statistics in mathematics. • Understanding of various types of graphs for data representation. • Computer and R Software
Expected Outcomes of the Course :	• Navigate and optimize the R integrated development environment (IDE) R Studio. • Install and load add-in packages. • Import external data into R for data processing and statistical analysis. • Learn the main R data structures – vector and data frame. • Compute basic summary statistics.
Course Name (Theory/ Practical/ Field based or Blended)	Theory and Practical
Eligibility Criteria of Participants:	12th Pass with Basic Computer Knowledge
Total Maximum Seats allotted for the Course :	75 Seats Per Division
Course Syllabus	Syllabus Attached
Exam Pattern : (MCQ/ Written / Practical/Blended)	Blended

Title:	**DATA VISUALIZATION WITH R**
Duration:	30 hours
Course Credits:	2
Eligibility Criteria:	12th Pass with Basic Computer Knowledge
Type of Course:	Multi Disciplinary
Mode of Lectures:	Blended
Medium of Instruction:	English
Pre-requisite:	• Knowledge of statistics theory in mathematics. • You should have solid understanding of statistics in mathematics. • Understanding of various types of graphs for data representation. • Computer and R Software
Evaluation Method:	Blended
Course Outcome	• Navigate and optimize the R integrated development environment (IDE) R Studio. • Install and load add-in packages. • Import external data into R for data processing and statistical analysis. • Learn the main R data structures – vector and data frame. • Compute basic summary statistics.
Course Objective	R is a programming language for statistical computing and graphics that you can use to clean, analyze, and graph your data. It is widely used by researchers from diverse disciplines to estimate and display results and by teachers of statistics and research methods.
Course Content:	**Unit 1: R – PACKAGES** **Unit 2: R – DATA RESHAPING** 2.1Joining Columns and Rows in a Data Frame 2.2Merging Data Frames 2.3Melting and Casting 2.4Melt the Data 2.5Cast the Molten Data **Unit 3: R – CSV FILES** 3.1Getting and Setting the Working Directory 3.2 Input as CSV File 3.3 Reading a CSV File 3.4 Analyzing the CSV File 3.5 Writing into a CSV File **Unit 4: R – EXCEL FILE** 4.1 Install xlsx Package 4.2 Verify and Load the "xlsx" Package 4.3 Input as xlsx File 4.4 Reading the Excel File

	Unit 5: R – BINARY FILES 5.1 Writing the Binary File 5.2 Reading the Binary File **Unit 6: R – XML FILES** 6.1 Input Data 6.2 Reading XML File 6.3 Details of the First Node 6.4 XML to Data Frame **Unit 7: R – JSON FILE** 7.1 Install RJSON Package 7.2 Input Data 7.3 Read the JSON File 7.4 Convert JSON to a Data Frame **Unit 8: R – WEB DATA** **Unit 9: R – DATABASES** 9.1 R MySQL Package 9.2 Connecting R to MySql 9.3 Querying the Tables 9.4 Query with Filter Clause 9.5 Inserting Data into the Tables 9.6 Updating Rows in the Tables 9.7 Creating Tables in MySql 9.8 Dropping Tables in MySql **Unit 10: R – PIE CHARTS** 10.1 Pie Chart Title and Colors
Reference Books:	1.R for Data Science: Import, Tidy, Transform, Visualize, and Model Data ------ by Hadley Wickham (Author), Garrett Grolemund 2. The Book of R: A First Course in Programming and Statistics by Tilman M. Davies 3. R for Everyone: Advanced Analytics and Graphics --- by Jared lander

Form - CC - 01

(Certification Course Proposal Form)

Title of Certification Course: WEB DESIGNING & PUBLISHING WITH WORDPRESS – I

Name of Institute : VIDYABHARTI TRUST COLLEGE OF BUSINESS, COMPUTER - SCIENCE & RESEARCH

Faculty Name: Computer Science & IT

Name of Course In Charge : Yatin H Patel

Course Credit for Proposed Course : 2 Credits

Total Course Hour : 30 Hour

Objective of the Course :	The goal for this course is to provide students the skills they need to effectively create and operate website using open source web designing tools.
Pre - requisite :	• Knowledge of Graphical User Interface • Computer and necessary Software
Expected Outcomes of the Course :	• Understand elements of design with regard to the web • Students will be able to create, organize and design websites. • Understand What a Content Management System is and how it differs from traditional, flat websites
Course Name (Theory/ Practical/ Field based or Blended)	Theory and Practical
Eligibility Criteria of Participants:	12th Pass with Basic Computer Knowledge
Total Maximum Seats allotted for the Course :	75 Seats Per Division
Course Syllabus	Syllabus Attached
Exam Pattern : (MCQ/ Written / Practical/Blended)	Blended

Title:	**WEB DESIGNING & PUBLISHING WITH WORDPRESS – I**
Duration:	30 hours
Course Credits:	2
Eligibility Criteria:	12th Pass with Basic Computer Knowledge
Type of Course:	Multi Disciplinary
Mode of Lectures:	Blended
Medium of Instruction:	English
Pre-requisite:	• Knowledge of Graphical User Interface • Computer and necessary Software
Evaluation Method:	Blended
Course Outcome	• Understand elements of design with regard to the web • Students will be able to create, organize and design websites. • Understand What a Content Management System is and how it differs from traditional, flat websites
Course Objective	The goal for this course is to provide students the skills they need to effectively create and operate website using open source web designing tools.
Course Content:	**Unit 1: Introduction to the Web; Domains and Web hosting** 1.1 Introduction 1.2 Basics of the Web and the Internet 1.3 Servers and Hosting 1.4 Choosing a Domain Name 1.5 Uploading the Files to the Server 1.6 Conclusion **Unit 2: HTML5, CSS, PHP** 2.1 HTML 2.2 CSS 2.3 PHP 2.4 Viewing Page Source in Chrome **Unit 3: Managing Content with Wordpress** 3.1 Installing WordPress 3.2 WordPress Quick Tour 3.3 Customization and Themes 3.4 Pages and Posts **Unit 4: Introduction to Web Design** 4.1 Introduction 4.2 Why Design? 4.3 Organizing Your Site 4.4 Page Organization 4.5 Hierarchy and Categorization 4.6 Web Design Toolbox 4.7 Trends in Web Design
Reference Books:	1. Professional wordpress: Design and Development --Wrox Publication 2. The Complete Reference - HTML & CSS -- Thomas A. Powell 3. HTML, CSS and Java Script - All in One - Pearson

	4. Building Web Apps with WordPress: WordPress as an Application Framework --- Book By Brian Messenlehner and Jason Coleman 5. WordPress for Beginners 2021: A Visual Step-by-Step ---- Book by Andy J. Williams 6. Web Programming -- Prof. Kiran Gurbani, Himalaya Publishing House

Form - CC - 01

(Certification Course Proposal Form)

Title of Certification Course: WEB DESIGNING & PUBLISHING WITH WORDPRESS – II

Name of Institute : VIDYABHARTI TRUST COLLEGE OF BUSINESS, COMPUTER - SCIENCE & RESEARCH

Faculty Name: Computer Science & IT

Name of Course In Charge : Yatin H Patel

Course Credit for Proposed Course : 2 Credits

Total Course Hour : 30 Hour

Objective of the Course :	The goal for this course is to provide students the skills they need to effectively create and operate website using open source web designing tools.
Pre - requisite :	• Knowledge of Graphical User Interface • Computer and necessary Software
Expected Outcomes of the Course :	• Understand elements of design with regard to the web • Students will be able to create, organize and design websites. • Understand What a Content Management System is and how it differs from traditional, flat websites
Course Name (Theory/ Practical/ Field based or Blended)	Theory and Practical
Eligibility Criteria of Participants:	12th Pass with Basic Computer Knowledge
Total Maximum Seats allotted for the Course :	75 Seats Per Division
Course Syllabus	Syllabus Attached
Exam Pattern : (MCQ/ Written / Practical/Blended)	Blended

Title:	**WEB DESIGNING & PUBLISHING WITH WORDPRESS – II**
Duration:	30 hours
Course Credits:	2
Eligibility Criteria:	12th Pass with Basic Computer Knowledge
Type of Course:	Multi Disciplinary
Mode of Lectures:	Blended
Medium of Instruction:	English
Pre-requisite:	• Knowledge of Graphical User Interface • Computer and necessary Software
Evaluation Method:	Blended
Course Outcome	• Understand elements of design with regard to the web • Students will be able to create, organize and design websites. • Understand What a Content Management System is and how it differs from traditional, flat websites
Course Objective	The goal for this course is to provide students the skills they need to effectively create and operate website using open source web designing tools.
Course Content:	**Unit 1: Contents, Themes and Customization** 1.1 Categories and Tags 1.2 Images 1.3 Audio 1.4 Video 1.5 Other Media/Files 1.6 Themes 1.7 A few great themes 1.8 Theme Hacking 1.9 Child Themes **Unit 2: More on Design: Color and Typography** 2.1 Color in Web Design 2.2 Color Schemes 2.3 Hex Colors 2.4 Typography 2.5 Taxonomy of Typefaces 2.6 Properties of Type 2.7 Design Principles for Typography 2.8 Web Fonts **Unit 3: Wordpress Plugins, Analytics, and Security** 3.1 WordPress Plugins 3.2 Jetpack 3.3 Caching 3.4 Search Engine Optimization 3.5 Google Analytics 3.6 Security **Unit 4: Advanced HTML, CSS, and PHP Features** 4.1 Introduction

	4.2 Why Design? 4.3 Organizing Your Site 4.4 Page Organization 4.5 Hierarchy and Categorization 4.6 Web Design Toolbox 4.7 Trends in Web Design
Reference Books:	1. Professional wordpress: Design and Development --- Wrox Publication 2. The Complete Reference - HTML & CSS -- Thomas A. Powell 3. HTML, CSS and Java Script - All in One - Pearson 4. Building Web Apps with WordPress: WordPress as an Application Framework --- Book By Brian Messenlehner and Jason Coleman 5. WordPress for Beginners 2021: A Visual Step-by-Step ---- Book by Andy J. Williams 6. Web Programming -- Prof. Kiran Gurbani, Himalaya Publishing House

Form - CC - 01

(Certification Course Proposal Form)

Title of Certification Course: INTRODUCTION TO SEARCH ENGINE OPTIMIZATION - I

Name of Institute : VIDYABHARTI TRUST COLLEGE OF BUSINESS, COMPUTER - SCIENCE & RESEARCH

Faculty Name: Computer Science & IT

Name of Course In Charge : Yatin H Patel

Course Credit for Proposed Course : 2 Credits

Total Course Hour : 30 Hour

Objective of the Course :	Search Engine Optimization is not only limited to Rankings or get top position in search engine. SEO is a process of optimizing a website and make more search engine and user friendly website. Our Advance SEO course will help professionals and students to become more Search engine friendly and they can organically increase the visibility of their businesses in different search engines
Pre - requisite :	• Knowledge of Computers. • Knowledge of Web Browsers. • Basic Image Editing.
Expected Outcomes of the Course :	• Increase Raw Traffic to Your Website • Increase E-commerce Sales
Course Name (Theory/ Practical/ Field based or Blended)	Theory and Practical
Eligibility Criteria of Participants :	12th Pass with Basic Computer Knowledge
Total Maximum Seats allotted for the Course :	75 Seats Per Division
Course Syllabus	Syllabus Attached
Exam Pattern : (MCQ/ Written / Practical/Blended)	Blended

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Title:	**INTRODUCTION TO SEARCH ENGINE OPTIMIZATION - I**
Duration:	30 hours
Course Credits:	2
Eligibility Criteria:	12th Pass with Basic Computer Knowledge
Type of Course:	Multi Disciplinary
Mode of Lectures:	Blended
Medium of Instruction:	English
Pre-requisite:	• Knowledge of Computers • Knowledge of Web Browsers • Basic Image Editing
Evaluation Method:	Blended
Course Outcome	• Increase Raw Traffic to Your Website • Increase E-commerce Sales
Course Objective	Search Engine Optimization is not only limited to Rankings or get top position in search engine. SEO is a process of optimizing a website and make more search engine and user friendly website. Our Advance SEO course will help professionals and students to become more Search engine friendly and they can organically increase the visibility of their businesses in different search engines
Course Content:	**Unit -1 Basics for SEO** 1.1. What is Domain 1.2. Basic Knowledge of World Wide Web 1.3. Difference between Portal and Search Engines 1.4. What is SEO 1.5. Types of SEO Techniques 1.6. Black hat techniques 1.7. White Hat techniques 1.8. How Search Engine works 1.9. Page Speed 1.10. Basics of search engine that includes crawling, indexing and caching. **Unit – 2 SEO Research & Analysis** 2.1. Market Research 2.2. Keyword Research and Analysis 2.3. Keyword opportunity 2.4. Competitors Website Analysis 2.5. SWOT Analysis of Website 2.6. How to Choose Best Keywords 2.7. Tools available for Keyword Research 2.8. Search engine commands 2.9. Search engine algorithms **Unit – 3 Website Design SEO Guidelines** 3.1 Content Research 3.2 Content Guidelines 3.3 Content Optimization 3.4 Design & Layout

	3.5 XML Sitemap / URL List Sitemap 3.6 Search engine friendly content development
Reference Books:	1. Step By Step Guide to Seo --- Upendra Rana 2. Seo 2021 – Dr.Andy Williams 3. Art of SEO: Mastering Search Engine Optimization – Eric Enge

Form - CC - 01

(Certification Course Proposal Form)

Title of Certification Course: INTRODUCTION TO SEO AND MARKETING TOOLS

Name of Institute : VIDYABHARTI TRUST COLLEGE OF BUSINESS, COMPUTER - SCIENCE & RESEARCH

Faculty Name: Computer Science & IT

Name of Course In Charge : Yatin H Patel

Course Credit for Proposed Course : 2 Credits

Total Course Hour : 30 Hour

Objective of the Course :	Search Engine Optimization is not only limited to Rankings or get top position in search engine. SEO is a process of optimizing a website and make more search engine and user friendly website. Our Advance SEO course will help professionals and students to become more Search engine friendly and they can organically increase the visibility of their businesses in different search engines
Pre - requisite :	• Knowledge of Computers. • Knowledge of Web Browsers. • Basic Image Editing.
Expected Outcomes of the Course :	• Increase Raw Traffic to Your Website • Increase E-commerce Sales
Course Name (Theory/ Practical/ Field based or Blended)	Theory and Practical
Eligibility Criteria of Participants :	12th Pass with Basic Computer Knowledge
Total Maximum Seats allotted for the Course :	75 Seats Per Division
Course Syllabus	Syllabus Attached
Exam Pattern : (MCQ/ Written / Practical/Blended)	Blended

Title:	**INTRODUCTION TO SEARCH ENGINE OPTIMIZATION AND MARKETING TOOLS**
Duration:	30 hours
Course Credits:	2
Eligibility Criteria:	12th Pass with Basic Computer Knowledge
Type of Course:	Computer Science Discipline
Mode of Lectures:	Blended
Medium of Instruction:	English
Pre-requisite:	• Knowledge of Computers • Knowledge of Web Browsers • Basic Image Editing
Evaluation Method:	Blended
Course Outcome	• Increase Raw Traffic to Your Website • Increase E-commerce Sales
Course Objective	Search Engine Optimization is not only limited to Rankings or get top position in search engine. SEO is a process of optimizing a website and make more search engine and user friendly website. Our Advance SEO course will help professionals and students to become more Search engine friendly and they can organically increase the visibility of their businesses in different search engines
Course Content:	**1. On-page Optimization** 1.1. The Page Title 1.2. Meta Descriptions & Meta Keywords 1.3. Headings 1.4. Bold Text 1.5. Domain Names & Suggestions 1.6. Canonical Tag 1.7. Meta Tags 1.8. Images and Alt Text 1.9. Internal Link Building 1.10. The Sitemap 1.11. Invisible Text 1.12. Server and Hosting Check 1.13. Robots Meta Tag

	1.14. Doorway Pages 1.15. 301 Redirects 1.16. 404 Error 1.17. Duplicate content 1.18. PDF, PPT, MS-Word & Video Optimization **2. Off-page Optimization** 2.1 Page Rank 2.2 Link Popularity 2.3 Link Building in Detail 2.4 Directory Submission 2.5 Social Bookmark Submission 2.6 Blog Submission 2.7 Articles 2.8 Links Exchange 2.9 Reciprocal Linking 2.10 Posting to Forums 2.11 Submission to Search Engine 2.12 RSS Feeds Submissions 2.13 Press Release Submissions 2.14 Forum Link Building 2.15 Competitor Link Analysis **3. Analytics** 3.1. Google Analytics 3.2. Installing Google Analytics 3.3. How to Study Google Analytics 3.4. Interpreting Bars & Figures 3.5. How Google Analytics can Help SEO 3.6. Advanced Reporting 3.7. Webmaster Central & Bing/Yahoo 3.8. Open Site Explorer 3.9. Website Analysis using various SEO Tools available **4. SEO Tools** 4.1. Keyword Density Analyzer Tools 4.2. Google Tools 4.3. Yahoo / Bing Tools 4.4. Rich Snippet Text Tools 4.5. Comparison Tools 4.6. Link Popularity Tools 4.7. Search Engines Tools 4.8. Site Tools
Reference Books:	1. Step By Step Guide to Seo --- Upendra Rana 2. Seo 2021 – Dr.Andy Williams 3. Art of SEO: Mastering Search Engine Optimization – Eric Enge