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VEER NARMAD SOUTH GUJARAT UNIVERSITY
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વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી
યુનિવર્સિટી કેમ્પસ, ઉધના મગદલ્લા રોડ, સુરત - ૩૯૫ ૦૦૭, ગુજરાત, ભારત.
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ક્રમાંક : એકે./પરિપત્ર/૫૮૨૪/૨૦૨૦
તા.૧૬/૦૭/૨૦૨૦

પ્રતિ,
કો–ઓર્ડિનેટરશ્રી,
બાયોટેકનોલોજી ડિપાર્ટમેન્ટ,
વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી,
સુરત.

વિષય :– One year P.G.Diploma Course In Molecular and Biochemical Technology નાં અભ્યાસક્રમ બાબત.

સુજ્ઞશ્રી,

સવિનય જણાવવાનું કે,શૈક્ષણિક વર્ષ ૨૦૨૦–૨૧ થી અમલમાં આવનાર રીવાઈઝ કરાયેલા અભ્યાસક્રમ One year Diploma Course in Molecular and Biochemical TechnologyનાSLOપર ચર્ચા કરતા બી.એસસી.એન્ડએમ.એસસી. બાયોટેકનોલોજી વિષયની નિયૂકત (એડહોક) સમિતિની તા.૨૨/૧૦/૨૦૧૯ ની સભાનાં ઠરાવક્રમાંકઃ ૩ અન્વયે **નીચે** મુજબ કરેલ ભલામણ વિજ્ઞાન વિદ્યાશાખાનાં અધ્યક્ષશ્રીએ વિજ્ઞાન વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ વિજ્ઞાન વિદ્યાશાખાવતી મંજૂર કરી એકેડેમિક કાઉન્સિલને કરેલ ભલામણ એકેડેમિક કાઉન્સિલે તેની તા.૩૦/૦૬/૨૦૨૦ ની સભાનાં ઠરાવ ક્રમાંકઃ ૯૦ અન્વયે સ્વીકારી મંજૂર કરેલ છે. તેની જાણ સંબંધકર્તા શિક્ષકો અને વિદ્યાર્થીઓને કરવી, તદ્ઉપરાંત તેનો અમલ કરવો.

બી.એસસી.એન્ડ એમ.એસસી. બાયોટેકનોલોજી વિષયની નિયૂકત (એડહોક) સમિતિની તા.૨૨/૧૦/૨૦૧૯ ની સભાનાં ઠરાવ ક્રમાંકઃ ૩

:: આથી ઠરાવવામાં આવે છે કે, બાયોટેકનોલોજીના રીવાઈઝ કરાયેલા અભ્યાસક્રમOne year Diploma Course in Molecular Biochemical TechnologySLO પર ચર્ચા વિચારણા કરી સર્વાનુમતે મંજુર કરી આગળની કાર્યવાહી માટે વિજ્ઞાન વિદ્યાશાખાને ભલામણ કરવામાં આવે છે.

એકેડેમિક કાઉન્સિલની તા.૩૦/૦૬/૨૦૨૦ ની સભાનાં ઠરાવ ક્રમાંકઃ ૯૦

:: આથી ઠરાવવામાં આવે છે કે, બી.એસસી. એન્ડ એમ.એસસી. બાયોટેકનોલોજી વિષયની નિયૂકત (એડહોક) સમિતિએ તેની તા. ૨૨/૧૦/૨૦૧૯ ની સભાના ઠરાવ ક્રમાંક : ૩ અન્વયે ભલામણ કરેલ અને વિજ્ઞાન વિદ્યાશાખાના અધ્યક્ષશ્રીએ વિજ્ઞાન વિદ્યાશાખાની મંજૂરીની અપેક્ષાએ સ્વીકારેલબાયોટેકનોલોજીના રીવાઈઝ કરાયેલા અભ્યાસક્રમ One year Diploma Course in Molecular Biochemical Technology મંજૂર કરવામાં આવે છે.

બિડાણઃ ઉપર મુજબ

R. B. Patel

ઈ.ચા.કુલસચિવ

પ્રતિ,
૧) અધ્યક્ષશ્રી, વિજ્ઞાન વિદ્યાશાખા
૨) પરીક્ષા નિયામકશ્રી, પરીક્ષા વિભાગ, વીર નર્મદ દ. ગુ. યુનિવર્સિટી, સુરત.
૩) પી.જી. વિભાગ, વી. ન. દ. ગુ. યુનિવર્સિટી, સુરત.

...તરફ જાણ તેમજ અમલ સારૂ.

Department of Biotechnology
Veer Narmad South Gujarat University

Diploma Course:

Title: One Year P. G. Diploma Course in Molecular & Biochemical Technology

Programme outcome:

After completion of this program students will be equipped with sound practical and theoretical know how of the detailed principles of the concepts and applications of Molecular and Biochemical Technology. They will graduate as expert professional ready to work in research, academic as well as industrial setups in their area of expertise.

Programme specific outcome:

Students will graduate with hands on knowledge of the major techniques used in the fields of Molecular and Biochemical Technology in academia, research and industry. They can go for further studies for super specializations, in interdisciplinary fields or join any related field industry as expert personnel. A post graduate diploma in Molecular and Biochemical Technology imparts specific expertise to these graduates and they fit in specialized fields like Bio-pharmaceuticals, Genetic engineering, Bio-therapeutics, Instrumentation etc. both at research and industrial levels.

Course outcome:

Module 1: Biophysical Techniques -1

Students will understand in detail the concept and application of Quantification of Proteins, Separation of Proteins, Purification of Proteins & Basic concept of Enzyme, Tissue Culture. At the end of this module they will be able to demonstrate a deep understanding of concepts and application of these topics at a theoretical level.

Module II: Recombinant DNA Technology -1

This module will help the students understand the principles of Concept of gene manipulation, Cloning vectors, Linkage & DNA library, Screening Technique and enable them to apply these to solve problems using tenets of Genetic Engineering and come up with new approaches.

Module III: Immunology –I

This module provides an Overview of the Immune system and an understanding of Antigen & Antibodies, Antigen antibody interactions, B Cell biology & Antibody diversity. As many of the applications of Molecular and Biochemical Technology are in the field of human pathology,

diseases and therapeutics, an understanding of immunology equips are students to become well rounded professionals.

Module IV: Lab work -I

A practical understanding and hands on knowledge of the principles, procedures and applications of Analysis, Estimation, Purification and Electrophoresis of biomolecules.

Module V: Lab work –II

A practical understanding and hands on knowledge of the principles, procedures and applications of Isolation of *E coli* DNA, Plasmid DNA, Digestion and recovery of DNA.

Module VI: Lab work –III

A practical understanding and hands on knowledge of the principles, procedures and applications of Quantitative, Immunodiffusion, Electroimmunoprecipitation, Agglutination.

Module VII: Seminar

Each student is required to deliver a seminar on any Molecular & Biochemical technology topic approved by the Coordinator / Head of the Department of Biotechnology. This module helps the students to become abreast of current trends and keep in touch with recent advancements and discuss with their peers.

Module VIII: Biophysical Techniques –II

This module helps students develop a deep understanding of the tenets and application of the principles of Separation of macromolecules by electrophoresis, Blotting Techniques & Principle of Centrifugation, Fermentation technology & Protein interaction, Bioinformatics and computational biology. These topics are very important and proficiency in them help the students gain an edge in their field.

Module IX: Recombinant DNA Technology –II

Students will gain deep theoretical and conceptual understanding of Heterologous protein expression of cloned DNA in *E.coli*, Gene transfer, PCR & rDNA technology, Genome structure & Transcriptome. This will help them understand application of these principles and come up with innovative solutions

Module X: Immunology –II

This module helps students gain an understanding of the principles of the response of T cells to antigens, Cytokines & Complement system, Vaccines, Autoimmunity & Transplantation immunology, Immune response & regulation. This knowledge equips them to come up with workable and practical solutions in the filed of therapeutics and human disease mitigation by applying their understanding of principles of Molecular and Biochemical Technology to

Module XI: Lab work- IV

A practical understanding and hands on knowledge of the principles, procedures and applications of SDS gel electrophoresis, Isoelectric focusing, Southern blotting, Western blotting and Databases.

Module XII: Lab work –V

A practical understanding and hands on knowledge of the principles, procedures and applications of Preparation of competent cells, Transformation, PCR and Calculation of the phage titre.

Module XIII: Lab work –VI

A practical understanding and hands on knowledge of the principles, procedures and applications of Complement fixation test, Purification of antibodies, Digestion of antibodies, ELISA etc.

Module XIV: Project

The last one month of the course the students will be required to do a project in any topic approved by the Coordinator / Head of the Department of Biotechnology. This project is to put into practice the concepts and knowledge of their classes in a workable and application based manner. Helps them to gain an appreciation of the real world and how they can solve problems with their expertise.