Re-Accredited by NAAC with 'A' Grade
VEER NARMAD SOUTH GUJARAT UNIVERSITY
University Campus, Udhna-Magdalla Road, SURAT - 395 007, Gujarat, India.
વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી
યુનિવર્સિટી કેમ્પસ, ઉધના-મગદલ્લા રોડ, સુરત - ૩૯૫ ૦૦૭, ગુજરાત, ભારત.
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.in

ક્રમાંક : એકે./ ૭૮૨૮ /૧૭
તા. ૦૨/૦૫/૨૦૧૭

પ્રતિ,
વડાશ્રી,
જે.પી.દાવર ઈન્સ્ટીટયૂટ ઓફ ઈન્ફોર્મેશન
સાયન્સ એન્ડ ટેકનોલોજી,
વીર નર્મદ દક્ષિણ ગુજરાત યુનિવર્સિટી,
સુરત.

વિષય :– બી.એસસી. (આઈ.ટી.) સેમેસ્ટર–૩ અને ૪ ના અભ્યાસક્રમ બાબત.

સુજ્ઞશ્રી,

સવિનય જણાવવાનું કે, શૈક્ષણિક વર્ષ ૨૦૧૭–૧૮ થી બી.એસસી. (આઈ.ટી.) સેમેસ્ટર–૩ અને ૪ નાં પ્રવર્તમાન CBCS અભ્યાસક્રમને રીવાઈઝડ કરવા ઈન્ફોરમેશન ટેકનોલોજી વિષયની એડહોક સમિતિએ તેની તા.૧૮/૧૦/૨૦૧૬ ની સભાના ઠરાવ ક્રમાંક : ૨ અન્વયે કરેલી નીચેની ભલામણ તેમજ બી.એસસી. (આઈ.ટી.) સેમેસ્ટર–૪ ના Soft Skill વિષયના અભ્યાસક્રમ અંગે કોમ્પ્યુટર સાયન્સ વિષયની અભ્યાસસમિતિ અને કોમ્પ્યુટર સાયન્સ એન્ડ ઈન્ફોર્મેશન ટેકનોલોજી વિદ્યાશાખાની સંયુકત સભાએ તેની તા.૧૦/૦૪/૨૦૧૭ ની સભાના ઠરાવ ક્રમાંક : ૬ અને ૭ અન્વયે કરેલી નીચેની ભલામણ એકેડેમિક કાઉન્સિલે તેની તા. ૨૮/૦૪/૨૦૧૭ ની સભાના ઠરાવ ક્રમાંક : ૧૮૬ અન્વયે મંજૂર કરેલ છે, તેની જાણ સંબંધકર્તા શિક્ષકો અને વિદ્યાર્થીઓને કરવી, તદ્ઉપરાંત તેનો અમલ કરવો.

ઈન્ફોરમેશન ટેકનોલોજી વિષયની એડહોક સમિતિની તા. ૧૮/૧૦/૨૦૧૬ ની સભાની ભલામણ ક્રમાંક : ૨

:: આથી ઠરાવવામાં આવે છે કે, શૈક્ષણિક વર્ષ ૨૦૧૭–૧૮ થી બી.એસસી. (આઈ.ટી.) સેમેસ્ટર–૩ અને ૪ (CBCS) અભ્યાસસમિતિનાં એડહોક બોર્ડ ધ્વારા તૈયાર કરવામાં આવેલ અભ્યાસક્રમને ચર્ચા વિચારણા કર્યા બાદ સર્વાનુમતે મંજૂર કરી કોમ્પ્યુટર સાયન્સ એન્ડ ઈન્ફોર્મેશન ટેકનોલોજી વિદ્યાશાખાને મંજૂર કરવા ભલામણ કરવામાં આવે છે.

કોમ્પ્યુટર સાયન્સ વિષયની અભ્યાસસમિતિ અને કોમ્પ્યુટર સાયન્સ એન્ડ ઈન્ફોર્મેશન ટેકનોલોજી વિદ્યાશાખાની સંયુકત સભાની તા.૧૦/૦૪/૨૦૧૭ ની સભાની ભલામણ ક્રમાંક : ૬ અને ૭

(૬):: આથી ઠરાવવામાં આવે છે કે, શૈક્ષણિક વર્ષ ૨૦૧૭–૧૮ થી બી.એસસી. (આઈ.ટી.) સેમેસ્ટર–૩ અને ૪ (CBCS) અભ્યાસસમિતિનાં એડહોક બોર્ડ ધ્વારા તૈયાર કરવામાં આવેલ અભ્યાસક્રમને સ્વીકારવામાં આવે છે અને તે મંજૂર કરવા એકેડેમિક કાઉન્સિલને ભલામણ કરવામાં આવે છે.

(૭):: આથી ઠરાવવામાં આવે છે કે, અંગ્રેજી વિષયની અભ્યાસસમિતિએ તૈયાર કરેલ SOFT SKILL નો અભ્યાસક્રમ સ્વીકારવામાં આવે છે અને તે મંજૂર કરવા એકેડેમિક કાઉન્સિલને ભલામણ કરવામાં આવે છે.

એકેડેમિક કાઉન્સિલની તા. ૨૮/૦૪/૨૦૧૭ ની સભાનો ઠરાવ ક્રમાંક : ૧૮૬

:: આથી ઠરાવવામાં આવે છે કે, કોમ્પ્યુટર સાયન્સ વિષયની અભ્યાસસમિતિ અને કોમ્પ્યુટર સાયન્સ એન્ડ ઈન્ફોર્મેશન ટેકનોલોજી વિદ્યાશાખાની સંયુકત સભાની તા.૧૦/૦૪/૨૦૧૭ ની સભાના ઠરાવ ક્રમાંક : ૬ અને ૭ અન્વયે કરેલ ભલામણ સ્વીકારી તે મંજૂર કરવામાં આવે છે.

બિડાણ : ઉપર મુજબ

ઈ.ચા.કુલસચિવ

પ્રતિ,

૧) અધ્યક્ષશ્રી, કોમ્પ્યુટર સાયન્સ એન્ડ ઈન્ફોર્મેશન ટેકનોલોજી વિદ્યાશાખા.
૨) પરીક્ષા નિયામકશ્રી, પરીક્ષા વિભાગ, વીર નર્મદ દ. ગુ. યુનિવર્સિટી, સુરત.

...તરફ જાણ તેમજ ઘટતી કાર્યવાહી સારૂ.

Paper No. 401

SOFT-SKILLS

B.Sc.IT- 4th Semester

Course Duration	Implementation from Academic year December 2017-18, 2018-19, 2019-20.	
Purpose of Course	This course helps to enhance the Soft Skills of the B.Sc.IT students.	
Course Objective	To enable the students to master and enhance Soft skills necessary for industry and become successful IT Professionals	
Pre-requisite	Knowledge of Basic English	
Course Out Come	Students will be able to enhance their soft skills and further implement to enrich their communication at workplace.	
Course Content	**Unit : 1 : Introduction to Soft – skills** 1.1 Meaning 1.2 Importance of Soft Skills for First Job and Future Career Advancement 1.3 Scenario of Soft skills in Indian IT Companies 1.4 Soft skills required by IT Professionals	**Unit 1 : Text :** 1. Soft skills for Everyone –Jett Butterfield 2. The Ace of Soft Skills – Gopalaswanny Ramesh 3. Enhancing Soft skills- Dipali Biswas 4. Placement and Personality Development- KVSG Murali Krishna
	Unit : 2 Business Ethics and Etiquettes 2.1 Etiquette Advantage in Business Communication – Introduction, Greetings, dressing and grooming, Norms of Business dressing, and Table Manners 2.2 Body Language during Professional Interactions 2.3 Developing a Professional Work Ethics 2.4 Developing Professional Telephonic Skills	**Unit 2 : Text :** 1. Enhancing Soft skills- Dipali Biswas 2. Soft skills for Everyone –Jett Butterfield
	Unit : 3 : Skills for Personality Development 3.1 Self Esteem 3.2 Building Self Confidence 3.3 Presenting Yourself Professionally 3.4 Team Work and Team Building 3.5 Managing Meetings 3.6 Negotiation Skills	**Unit 3 : Text :** 1. The Ace of Soft Skills – Gopalaswanny Ramesh 2. Soft –skills for Managers-Dr. T.Kalyana Chakravarti 3. Communication Skills for Engineers- Sunita Mishra
	Unit : 4 : Writing Skills 4.1 Managing data Using Graphics 4.2 Writing for Website 4.3 Drafting Effective Objective Statements 4.4 Content writing 4.5 Business vocabulary	**Unit 4 : Text:** 1. BCOM- Lehman/Duferene/Sinha 2. Personality Development and Soft-skills-Barun Mitra

	Unit : 5 : Interpersonal Skills 5.1 Understanding Professional Relationships 5.2 Respecting Social Protocols 5.3 Networking Professionally 5.4 Socializing professionally	**Unit 5 : Te** 1. Person ment and So Mitra 2. Soft sk ne –Jett Butter
Paper Style & Distribution of Marks:	**Q.1 Answer in Detail: (2 out of 3) 14** **Q.2 Answer the following: (2 out of 3) 14** **Q.3A Write Short notes on:(1 out of 2) 07** **3B Drafting presentations & dialogues Based on unit 3. (1 out of 2) 07** **Q.4 All questions are compulsory.** **Q.4 A. Draft E- Content for the given web-Site. 06** **B. Business vocabulary & Idioms 05** **c. Draft effective objective statements for the given posts. 05** **Q.5 Answer the following: (2 out of 3) 12** TOTAL 70 Marks	
Teaching Methodology:	Class room Discussion, Individual Exercises, Independent Study, Seminars and Assignment, group Exercise, Guest Sessions.	
Evaluation Method:	30% Internal assessment 70% External assessment	

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	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	After the completion of the course, students will be able to develop and manage various types of software based on technologies learnt throughout the course and emerging technologies in IT industry which will give them excellent career prospects.
Effective From	June 2017

Program Structure		B.Sc. (I.T.) – Semester 3 (M.Sc. (I.T.) 5 years Integrated Course)						
Course Code	Title	Teaching per week (Hrs.)		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
301	Soft Skills	4	0	4	3 Hrs	70	30	100
302	Microprocessor and Assembly Language	4	0	4	3 Hrs	70	30	100
303	Data Structures	4	0	4	3 Hrs	70	30	100
304	Object Oriented Programming	4	0	4	3 Hrs	70	30	100
305	Computer Network	4	0	4	3 Hrs	70	30	100
306	Practical 5	0	4	2	2 Hrs	70	30	100
307	Practical 6	0	6	3	2 Hrs	70	30	100
	Total	20	10	25	-	490	210	700

Program Structure		B.Sc. (I.T.) – Semester 4 (M.Sc. (I.T.) 5 years Integrated Course)						
Course Code	Title	Teaching per week (Hrs.)		Course Credits	University Examination		Internal Marks	Total Marks
		Theory	Practical		Duration	Marks		
401	Environmental Science	4	0	4	3 Hrs	70	30	100
402	Fundamental of Embedded System and IoT	4	0	4	3 Hrs	70	30	100
403	VB .NET	4	0	4	3 Hrs	70	30	100
404	Relational Database Management System-I	4	0	4	3 Hrs	70	30	100
405	Web Development-I	4	0	4	3 Hrs	70	30	100
406	Practical 7	0	2	1	2 Hrs	70	30	100
407	Practical 8	0	6	3	3 Hrs	70	30	100
408	Practical 9	0	2	1	2 Hrs	70	30	100
	Total	20	10	25	-	560	240	800

Program Passing Rules	**As per University rules**

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, holid
Last Review / Revision	June 2017
Purpose of Course	To understand importance and role of micro processor in ganized system.
Course Objective	This course gives concepts about interfacing of devices rocessor and develops logic with assembly language at machine le
Pre-requisite	Fundamentals of Digital Logic Design and Computer Orga
Course Out come	Students will understand 8086 microprocessor, addressin Assembly language instructions to implement logical prog s microprocessor based computer system.
Course Content	**Unit : 1 : Introduction to Microprocessors** 1.1 Intel 8086 architecture and Internal Operations 1.2 8086 microprocessor pin-diagram 1.3 Addressing Modes of 8086 1.4 Intel 8086 circuit Configurations and operation for M Maximum Mode 1.5 Intel 8086 System Connections and System Bus Timin minimum and maximum mode configuration **Unit : 2 : Intel 8086 Family assembly Language Programm** 2.1 Program Development Stage 2.2 ,Assemble Instruction Format 2.3 8086 microprocessor Assembly language Instruction s 2.4 Writing & Using Procedures, Macros & Debugging of A guage Programs, 2.5 Programming with the use of Assembler and other D ools like Loader , Compiler , Locator , debugger 2.6 Practice with Simple sequence Programs, Flags, jump 2.7 Implementation of Decision making, Multiple Branchi ve Looping Controls with Assembly Language instruction 2.8 Understand String Instructions, Stack manipulation in 2.9 Assembly Directives and DOS / BIOS interrupt implem g C with Assembly language Programming. **Unit : 3 : Interrupts Management** 3.1 Study of Different Types of Intel 8086 interrupts gene s acknowledgment and typical 8086 response cycle. 3.2 Interrupt Vector Table (IVT) 3.3 Study of soft interrupts 3.4 Interrupt Service Routines

	Unit : 4 : Programmable Peripherals Devices 4.1 Programmable Peripheral Interface Intel 8255 4.2 Programmable keyboard/Display 8279 4.3 Programmable Interrupt Controller 8259 4.4 Programmable interval timer8253 4.5 USART-8251 4.6 Overview of I/O buses. 4.7 Programming and interfacing concept of programmable devices with 8086 microprocessor **Unit : 5 : Advanced Microprocessors** 5.1 Overview of co-processor 5.2 Overview of 80186 5.3 Overview of 80286 5.4 Overview of 80386 5.5 Overview of 80486 5.6 Overview of Pentium architectures
Reference Book	1 MICROPROCESSORS AND MICROCONTROLLERS, PABLO MARY ,Panda Jeebananda,PHI,2016 2 The x86 Microprocessors: 8086 to Pentium, Multicores, Atom and the 8051 Microcontroller Architecture, Programming and Interfacing, Lyla B. Das, Second Edition, Pearson Education,2014 3 The Intel Microprocessors: Pearson New International Edition, Barry B. Brey, Pearson Education,2013 4 Microprocessor& Interfacing (programming and hardware),Douglas Hall, Tata McGraw Hill,2012 5 Microprocessors and Interfacing Techniques, Swapneel Chandrakant Mhatre,, Jaico Publishing House.2012 6 Microprocessors and Interfacing, N Senthil Kumar, M Saravanan, S Jeevananthan, Satish Shah, Pearson, 2012 7 MICROPROCESSORS & MICROCONTROLLERS, NAGOORKANI, Tata McGraw-Hill Education,2012 8 MICROPROCESSORS AND MICROCONTROLLERS: ARCHITECTURE, PROGRAMMING AND SYSTEM, KRISHNA KANT,PHI,2011 9 Microprocessor & Microcontroller, A.P.Godse, D.A.Godse, Technical Publications, Pune, 2010 10 The Intel Microprocessors: 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, Pentium Pro Processor, Pentium II, Pentium III, Pentium 4, and Core2 with 64-bit Extensions, 8/e, Barry B. Brey, Pearson Education, 2009 11 Microprocessors And Interfacing, D.A.Godse, A.P.Godse, Technical publications,Pune,2009 12 Microprocessor 8085, 8086, Abhishek Yadav, University science press, 2008
Teaching Methodology	Lectures, Discussion, Independent Study, Seminars and Assignment
Evaluation Method	30% Internal assessment 70% External assessment

P. M. Desai

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, holiday
Last Review / Revision	June 2017
Purpose of Course	To introduce the basic concepts of data structures and algo g linear and non linear data structures and their logical imple
Course Objective	To teach fundamental concepts of data structures inclu ueue, linked list, tree and various sorting, searching technique e also entails practical aspect of applications of data structures.
Pre-requisite	Fundamentals of Computer, C Programming Language
Course Out come	After studying the course, students will be able to use and i a structures and their applications. Students will also able to data structure like binary tree, AVL tree and various sorting algor
Course Content	**Unit : 1 : Introduction** 1.1 Definition and Classification 1.2 Importance of data structures 1.3 Data Structure Operations 1.4 Analysis of Algorithms, Algorithm Complexity 1.5 Time-Space Trade off, Big-O and theta Notation **Unit : 2 : Linear Data Structures** 2.1 Array: Storage, mapping and applications 2.2 Stack 2.2.1 Concept and Definition 2.2.2 Operations 2.2.3 Applications of stack 2.2.4 Polish Expression 2.2.5 Infix, Prefix and Postfix Notation 2.2.6 Converting Infix to Postfix Notat 2.2.7 Expression Evaluation 2.2.8 Recursion and Tower of Hanoi P 2.3 Queue 2.3.1 Concept and Definition 2.3.2 Types of Queue 2.3.3 Simple Queue 2.3.4 Circular Queue 2.3.5 Double ended Queue 2.3.6 Priority Queue 2.3.7 Operations on all queue 2.3.8 Application of queue 2.3.9 Job Scheduling 2.4 Linked List 2.4.1 Concept and Definition 2.4.2 Types of Linked list 2.4.3 Singly Linked List 2.4.4 Circular Linked List 2.4.5 Doubly Linked List

P. V. D

	2.4.6 Circular Doubly Linked List 2.4.7 Operations on linked list 2.4.8 Applications 2.4.9 Polynomial Manipulation **Unit : 3 : Non Linear Data Structures** 3.1 Graph 3.1.1 Definition and Introduction 3.2 Tree 3.2.1 Introduction and Representation 3.2.2 General Tree 3.2.3 Binary Tree 3.2.4 Threaded and linked storage representation of Binary Tree 3.2.5 Operations on Binary Tree 3.2.6 Binary Tree Traversal 3.2.7 Binary Search Tree 3.2.8 Forest 3.2.9 Height-Balanced Tree: AVL tree 3.2.10 Splay Tree 3.2.11 Applications of tree: Expression Tree 3.2.12 Symbol table and Syntax Analysis **Unit : 4 : Basic Techniques and Example Algorithms for** 4.1 Divide and Conquer Method 4.2 Greedy Method 4.3 Backtracking **Unit : 5 : Searching and Sorting** 5.1 Searching 5.1.1 Linear Search 5.1.2 Binary Search 5.1.3 Hashing 5.1.3.1 Hash Tables 5.1.3.2 Hash Functions and Hash Keys 5.1.3.3 Collision and Collision Resolution 5.1.3.4 Rehashing 5.2 Sorting 5.2.1 Bubble sort 5.2.2 Selection sort 5.2.3 Insertion sort 5.2.4 Shell sort 5.2.5 Merge sort 5.2.6 Quick sort 5.2.7 Radix sort 5.2.8 Heap Sort

P. M. Desai

Reference Book	1. An Introduction to Data Structures with applications ——————renson – TMH 2. Theory and problems of data structures – Seymour Li[redacted] 3. Data Structures and Algorithms in C++ - Michael T[redacted]oberto Tamassai, David M. Mount – Wiley 4. Fundamentals of Data Structures in C, Horowitz, Sah[redacted]reed - W. H. Freeman & Co. New York, NY, USA 5. Data Structures & Algorithms, A V Aho, J E Hopcroft, J ldison-Wesley Publishing 6. Data Structure & "C" Programming - Vanwyte C J - Ad[redacted]. 7. Data Structures, Algorithms And Object Oriented P[redacted]- TMH edition Geogory L. Heileman. 8. Data Structures using C & C++ - Y. Langsam Moshe J. [redacted] A.M. Terenbanm
Teaching Methodology	Lectures, Discussion, Self Study, Seminars, Case Study and [redacted]
Evaluation Method	30% Internal assessment 70% External assessment

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
Pre-requisite	C Programming
Course Out come	Student will be able to understand OOP concepts with implementation in C++.
Course Content	**Unit : 1 : Basic concepts of object oriented of programming** 1.1 Background 1.1.1 Procedure Oriented Programming Vs Object Oriented Programming 1.1.2 Basic Concepts of Object Oriented Programming 1.1.3 Benefits of Object Oriented Programming 1.2 Classes & Objects 1.2.1 Specifying a class 1.2.2 Defining member functions 1.2.3 Inline function 1.2.4 Nesting of member functions 1.2.5 Private member function 1.2.6 Static data members 1.2.7 Static member functions 1.2.8 Friend functions 1.2.9 Returning objects 1.2.10 Pointers to members 1.3 Constructors & Destructors 1.3.1 Constructors 1.3.2 Parameterized constructors 1.3.3 Multiple constructors in a class 1.3.4 Constructors with default arguments 1.3.5 Copy constructors 1.3.6 Dynamic constructors 1.3.7 Const objects 1.3.8 Destructors. **Unit : 2: Inheritance & Polymorphism** 2.1 Inheritance 2.1.1 Defining derived class using single base class 2.1.2 Derivation using public 2.1.3 Private and protected access modifiers 2.1.4 The implementation of inheritance in the C++ object model 2.1.5 The multiple inheritance, Abstract classes 2.1.6 Composite objects (container objects) 2.2 Compile Time Polymorphism 2.2.1 Function Overloading 2.2.2 Unary Operators 2.2.3 Binary Operators 2.2.4 Using Friends as operator functions

P. M. Desai

	2.2.5 Overloading other Operators 2.2.6 User defined conversion 2.2.7 Four different cases of user defined 2.2.8 Comparison of both the methods of 2.3 Run Time Polymorphism 2.3.1 Pointers to objects 2.3.2 this pointer 2.3.3 Pointers to derived classes 2.3.4 Virtual functions 2.3.5 Pure virtual functions. **Unit : 3: I/O Streams and Files** 3.1 I/O Streams 3.1.1 Introduction to stream 3.1.2 Advantages of using C++ I/O over C I/O 3.1.3 The C++ Predefined streams 3.2.4 Formatting I/O 3.1.5 Formatting using I/Os members 3.1.6 Manipulators, Creating our own manipulat 3.2 Data Files 3.2.1 Introduction to File I/O 3.2.2 Text and binary streams 3.2.3 Opening and closing files 3.2.4 Text files 3.2.5 Binary files 3.2.6 Providing Random Access using seek 3.3 I/O Modes Handling Errors **Unit 4: Exception Handling** 4.1 Introduction 4.2 Basics of Exception Handling 4.3 Exception Handling Mechanism 4.4 Throwing Mechanism 4.5 Catching Mechanism 4.6 Rethrowing an Exception **Unit : 5 Templates** 5.1 Function Templates 5.2 Non Generic (Non Type) Parameters in Template 5.3 Template function and specialization 5.4 Overloading a template function 5.5 Using Default Arguments 5.6 Class Templates 5.7 Classes with multiple generic data types 5.8 Static data members 5.9 Primary and Partial Specialization 5.10 The Export Keyword.
Reference Book	1. Object Oriented Programming with C++: Balagurusamy 2. OOP in Turbo C++: Robert Lafore - Galgotia Publication 3. C++ Primer :Lippman - Addison Wesley 4. Object Oriented Programming Fundamentals & Applicati Sengupta - PHI

	5. The Complete Reference: Schildt - Osborne 6. The C++ Programming Language: Stroustrup - Addison Wesley
Teaching Methodology	Discussion, Independent Study, Seminars and Assignment
Evaluation Method	30% Internal assessment 70% External assessment

P. M. Desai

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, holiday)
Last Review / Revision	June 2017
Purpose of Course	To provide fundamental knowledge of Computer Network
Course Objective	To Impart fundamental Knowledge of Computer Network
Pre-requisite	Knowledge of Fundamental of Computers
Course Out come	Students will be able understand computer networking , Kn[redacted]ut Computer Network Security
Course Content	**Unit : 1 : Introduction to Networks** 1.1 Data Communications: components 1.2 Direction of data flow, 1.3 Networking – Concepts, 1.4 Need, Uses and advantages of Network, 1.5 Categories of networks , 1.6 Client, Servers and Peers based and Hybrid Networks, 1.7 Topologies, 1.8 Review of protocols, 1.9 Models and implementations, 1.10Transport and Internet protocols. **Unit : 2 : The OSI Model** 2.1 Layer architecture, 2.2 OSI Model, 2.3 The OSI Model layer functions **Unit : 3 : Introduction to Physical Layer** 3.1.1 Data and Signals, 3.1.2 Digital Transmission, 3.1.3 Analog transmission, 3.1.4 Bandwidth, 3.1.5 Transmission Media, 3.1.6 Switching, 3.1.7 IEEE 8.2 Standards 3.2.1 Functions of Data link layer, 3.2.2 Error detection and correction, 3.2.3 Error detection and correction codes, 3.2.4 Data link control and protocols, 3.2.5 Multiple access protocol: CSMA/CD, LAN: Ethernet, 3.2.6 Introduction : Wireless LAN, Connecting devices: Rep[redacted]Bridges, switches, Concept of VLAN 3.3.1 Introduction to Network Layer 3.3.2 Connectionless service, 3.3.3 Connection oriented service, 3.3.4 Internetworking, addressing, 3.3.5 Routing algorithms (Distance vector, Link state), 3.3.6 Introduction to Network layer in internet: Logical add[redacted] 3.3.7 IP protocol, IP address, 3.3.8 Classes of IP addresses, 3.3.9 Routers, Brouters, Gateways 3.4.1 Transport Service Primitives, 3.4.2 Addressing, connection establishment, flow control,

	3.4.3 Multiplexing, 3.4.4 Introduction to transport layer protocols and their features. 3.5.1 Introduction to : Establishing Session, 3.5.2 Presentation with Content Encoding and Decoding 3.5.3 Introduction to application layer protocols. **Unit : 4 : Network Configuration and Administration** 4.1 Installing and configuring network adapters, 4.2 Managing network bindings, 4.3 Sharing files and printers User profiles, 4.4 Folder security, Account policies, 4.5 Trust relationship between domains, 4.6 Computer Management 4.7 Workstation management 4.8 Network Management commands **Unit : 5 : Network Security** 5.1 Various Types of security, 5.2 Security with certificates, 5.3 Planning a security approach, 5.4 Security problems and their consequences, 5.5 Introduction to firewalls, 5.6 Encryption and decryption standards, 5.7 Secure Socket Layer, 5.8 Virtual Private Networks
Reference Book	1. Data Communications and Networking, 4/e Behrouz A. Forouzan - DeAnza College 2. Computer Networks by A.S. Tanenbaum - PHI Publications 3. Computer Networks : A pragmatic Approach, C R Sharma, Jaico, 2005 4. Data and computer Communication, William stallings - Pearson Education, 5. MCSE: Networking Essentials Study Guide – TMH 6. Mastering Local Area Networks by Christa Anderson & Mark Minasi – BPB
Teaching Methodology	Class Room Teaching, Discussion and Assignment
Evaluation Method	30% Internal assessment 70% External assessment

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,
Last Review/Revision	June 2017
Purpose of Course	To impart practical knowledge of various data structure
Course Objective	To give practical knowledge on applications of data stru
Prerequisite	Basic knowledge of C programming language
Course Outcome	Students will be able to perform practical on various li linear data structures
Course Content	Practical based on Paper No 303
Reference Books	NIL
Teaching Methodology	Lab Work, Assignment
Evaluation Method	30% Internal Assessment 70% External Assessment

P. M. Desai

Course : 307 : Practical 6

Course Code	307
Course Title	Practical 6
Credit	3
Teaching Per Week	6 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 object oriented programming
Course Objective	To give practical knowledge of object oriented programming
Prerequisite	Basic knowledge of C programming language
Course Outcome	Students will be able to solve problems using object oriented programming methodologies
Course Content	Practical based on Paper No 304
Reference Books	NIL
Teaching Methodology	Lab Work
Evaluation Method	30% Internal Assessment 70% External Assessment

P. M. Desai

Course: Environmental Science

Course Code	401
Course Title	Environmental Science
Credit	4
Teaching per Week	4 Hrs
Minimum weeks per Semester	15 (Including Class work, examination, preparation, holid
Last Review / Revision	June 2016
Purpose of Course	To make students aware of the environment and related
Course Objective	To sensitize the students towards the environ inculcate environmental values and ethics in them.
Pre-requisite	Basic knowledge about the environment.
Course Out come	To bring an environmental awareness and change in their irds nature and environment.
Course Content	**Unit : 1 : The Multidisciplinary Nature of Environment** 1.1 Definition 1.2 Scope 1.3 Importance 1.4 Need for Public Awareness 1.5 Institutions in Environment 1.6 People in Environment **Unit : 2 : Natural Resources** 2.1 Introduction 2.2 Renewable and non-renewable 2.3 Natural Resources and associated problems 2.4 Non-renewable Resources 2.5 Renewable Resources 2.6 Role of an individual in conservation of natural re 2.7 Equitable use of resources for sustainable lifestyl **Unit : 3 : Ecosystems and Biodiversity** 3.1 Concept of Ecosystem 3.2 Understanding Ecosystems 3.3 Ecosystem degradation 3.4 Resource Utilization 3.5 Structure and functions of an ecosystem 3.6 Producers, consumers and decomposers 3.7 Energy flow in the ecosystem 3.8 Introduction, types, characteristic features, struct ions 3.9 Forest Ecosystems 3.10Grassland Ecosystems 3.11Desert Ecosystems 3.12Aquatic Ecosystems 3.13 Genetic diversity 3.14 Species diversity 3.15 Ecosystem diversity 3.16 Bio geographic classification of India 3.17 Value of Biodiversity 3.17.1 Consumptive use value 3.17.2 Productive use value 3.17.3 Social values 3.17.4 Ethical and moral values

P. M. Desai

	3.17.5 Aesthetic value 3.17.6 Option value **Unit : 4 : E-Waste and Green Computing** 4.1 Introduction 4.2 Major types of E-Waste 4.3 Management of E-Waste 4.3.1 Personal Computers 4.3.2 Laptop Computer 4.3.3 Mobile Telephones 4.4 Hazards of E-Waste 4.5 Barriers to recycling E-Wastes 4.6 Green Computing 4.7 Advantages of Green Computing 4. 8 Steps to Green computing 4.9 Green Computing in IT **Unit : 5 : Pollution** 5.1 Definition 5.2 Causes, effects and control measures of pollution 5.3 Air pollution 5.4 Water pollution 5.5 Soil pollution 5.6 Marine pollution 5.7 Noise pollution 5.8 Thermal pollution 5.9 Nuclear hazards 5.10 Solid waste management: Causes, effects and control measures of urban and industrial waste 5.11 Role of an individual in the prevention of pollution 5.12 Disaster management: Floods, Earthquakes, cyclones, landslides 5.13 Social Issues and Environment 5.13.1 From unsustainable to sustainable development 5.13.2 Urban problems related to energy 5.13.3 The conservation ethic and traditional value systems of India 5.13.4 Climate Change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust 5.14 Environment and Human Health: 5.14.1 Environmental health 5.14.2 Climate and Health 5.14.3 Infectious diseases 5.14.4 Water related diseases 5.14.5 Risks due to chemical in food 5.14.6 Cancer and the environment
Reference Book	1. Textbook of Environmental Studies For Undergraduate Studies- Erach Bharucha 2. Environmental Studies- Dr. R.J.Ranjit Daniels,Dr.Jagdish Krishnaswamy 3. Environmental Science- Botkin and Keller 4. Waste Management Practices-John Pichtel 5. Green computing: Tools and techniques for saving, energy, money and resources-Bud Smith CRC Press.

P. M. Desai

	6. Green computing and IT Best Practices on Regulation Initiative, virtualization, power management, materia telcommuting-Jason Haris 7. Sustainable ICTs and Management Systems for Green laima Kaabouch ,IGI Global 8 E-Waste: Implications, regulations and management i rrent global practices-Rakesh Johri
Teaching Methodology	Class room Discussion, Individual Exercises, Independent ars and Assignment, group Exercise , Guest Sessions, Language La
Evaluation Method	30% Internal assessment 70% External assessment

P. M. Desai

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 Class work, examination, preparation, holidays etc.)
Last Review / Revision	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.
Pre-requisite	Fundamentals of Digital Logic Design, 'C' language, microprocessor and Computer system
Course Out come	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.
Course Content	**Unit : 1 : Introduction of Embedded System** 1.1 Trends in Embedded Systems 1.2 Challenges and Design Issues in Embedded Systems 1.3 Applications of embedded system 1.4 Embedded system development process **Unit : 2 : Introduction of 8-bit and 32 bit Microcontrollers** 2.1 Introduction to 8-bit 8051 core Microcontroller Architecture and Organization 2.2 Introduction of 32-bit ARM Microcontroller Architecture 2.3 input / Output Ports 2.4 interrupt handling 2.5 Timers and Counters **Unit : 3 : Microcontroller and Interfacing** 3.1 Introduction of Sensors and Analog to digital converter(ADC) 3.2 Introduction of UART 3.3 Introduction of I2C 3.4 Introduction of SPIS **Unit : 4 : Programming Concepts for Embedded system** 4.1 Overview of different programming language for embedded system 4.2 Introduction to RTOS 4.3 system programming using C-language for 8-bit microcontroller 4.4 8051 microcontroller interfacing with different devices

P. M. Desai

	Unit : 5 : Introduction of the Internet of the Things (IC 5.1 Embedded system platforms and utilities in IOT 5.2 Ethics requirements in Internet of the things 5.3 Wired and Wireless distributed embedded system app T 5.4 Overview of Near Field Communication (NFC- Bluetoot its applications for IOT 5.5 Overview of development Tools for embedded systen
Reference Book	1 MICROPROCESSORS AND MICROCONTROLLERS, PA ,Panda Jeebananda,PHI,2016 2 The Internet of Things: Do-It-Yourself at Home P rduino, Raspberry Pi and BeagleBone Black, Donald M aw-Hill Education, 2015 3 Embedded Systems: Concepts, Design and Program shu B. Dave, Pearson, 2015 4 Designing The Internet of Things, Hakin Cassimally Ad ,Willey, 2015 5 The Internet of Things: Key Applications and Protocol arthick, Omar Elloumi Olivier Hersent,Wiley,2015 6 The Internet of Things: How Smart TVs, Smart Cars es, and Smart Cities Are Changing the World,Michael Miller,pe 7 The x86 Microprocessors: 8086 to Pentium, Multic nd the 8051 Microcontroller Architecture, Programming an Lyla B. Das, Second Edition, Pearson Education,2014 8 The 8051 Microcontroller Based Embedded Systems, tel,Tata McGraw-Hill,2014 9 AVR Microcontroller and Embedded Systems: Usin and C, Muhammad Ali Mazidi,Pearson, 2013 10 MICROPROCESSORS & MICROCONTROLLERS, NAGOOI cGraw-Hill Education,2012 11 Embedded Systems: Hardware, Design and Impler rzysztof Iniewski, Willey,2012 12 MICROPROCESSORS AND MICROCONTROLLERS CTURE, PROGRAMMING AND SYSTEM, KRISHNA KANT,PHI,201 13 Getting Started with the Internet of Things, Cuno P fist 11 14 Microcontrollers - Architecture, Programming, Interfa em, Raj Kamal,pearson, 2011 15 Microprocessor & Microcontroller, A.P.Godse, D echnical Publications, Pune, 2010 16 Introduction to Embedded Systems, K. Shibu, raw-Hill Education,2009 17 ARM Assembly Language,William Hohl,CRC press,200 18 C and the 8051, Thomas W Schultz, Wood Island Print 19 Embedded C, Michael Pont, pearson, 2007 20 The 8051 microcontroller, kennith j. ayala,Thomson,2
Teaching Methodology	Lectures, Discussion, Independent Study, Seminars and Assi
Evaluation Method	30% Internal assessment, 70% External assessment

Course: 403 VB.NET

Course Code	403
Course Title	VB.NET
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	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.
Pre-requisite	Knowledge of Programming, Object Oriented Programming and Database Management System
Course Out come	Students will be able to develop windows forms basic applications using VB.NET.
Course Content	**Unit : 1 : Visual Basic .NET and the .NET Framework** 1.1 Microsoft .NET Framework architecture 1.2 Common Language Runtime 1.3 Common Type System 1.4 Common Language Specification 1.5 Microsoft Intermediate Language 1.6 Assemblies – Private, Shared and Satellite 1.7 Namespaces 1.8 Class Libraries 1.9 Introduction of Visual Studio.Net – IDE 1.10 App.config – Application Settings and Connection String **Unit : 2 : Programming in Visual basic .net** 2.1 Data Type 2.2 Variables 2.3 Constants 2.4 Arrays 2.5 Control Array 2.6 Collections 2.7 Subroutines 2.8 Functions 2.9 Control Flow statements 2.10 Messagebox and Inputbox **Unit : 3 : VB.NET Standard Controls with Properties, Events and Methods** 3.1 Form 3.2 Textbox 3.3 Label 3.4 Button 3.5 Listbox 3.6 Combobox 3.7 Checkbox 3.8 Picturebox 3.9 Radiobutton 3.10 Linklabel 3.11 Scrollbar 3.12 Timer 3.13 Panel 3.14 Listview 3.15 Treeview 3.16 Toolbar

	3.17 StatusBar 3.18 Implementation of User Controls **Unit : 4 : Built-In Dialog Boxes, Containers and Menus** 4.1 OpenFileDialog 4.2 SaveFileDialog 4.3 FontDialog 4.4 ColorDialog 4.5 PrintDialog 4.6 MenuStrip 4.7 ToolStrip 4.8 StatusStrip 4.9 FlowLayoutPanel 4.10 GroupBoxPanel 4.11 SplitContainer 4.12 TabControl 4.13 TableLayoutPanel **Unit : 5 : Database Programming with ADO.NET** 5.1 ADO.NET Architecture 5.2 ADO.NET Components 5.3 Connection Object 5.4 Command Object 5.5 DataReader Object 5.6 DataAdepter Object 5.7 SQL Server .NET Data Provider 5.8 OLEDB .NET Data Provider 5.9 DataSet Object 5.10 DataGrid Object 5.11 Design time data binding 5.12 Runtime data binding 5.13 Working with Stored Procedures
Reference Book	1. Professional VB.NET by Fred Barwell : Wrox Publicatio 2. Visual Basic .NET Programming – Black Book by Stevar [redacted] eamtech Press 3. Introduction to .NET framework : Worx publication 4. The Complete Reference Visual Basic .NET by Jeffery F [redacted] ta McGraw Hills 5. Murach's Beginning Visual basic .Net By Anne Bohem 6. Mastering VB.NET by Evangelos petroutsos : BPB publ
Teaching Methodology	Class Room Teaching, Discussion and Assignment
Evaluation Method	30% Internal assessment 70% External assessment

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 Class work, examination, preparation, holidays etc.)
Last Review / Revision	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)
Pre-requisite	Basic Concepts of DBMS
Course Out come	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
Course Content	**Unit : 1 : Relational Model** 1.1 Structure of relational databases 1.2 Codd's rules 1.3 The relational algebra 1.3.1 Fundamental operations 1.3.1.1 Selection, projection, 1.3.1.2 Set Operations Union, intersection, difference, Cartesian Product **Unit : 2: Relational Database Design** 2.1 Functional Dependency 2.1.1 Definition 2.1.2 Trivial and non trivial FD 2.1.3 Inference Rules for FDs 2.1.4 Closure of FD set 2.2 Database Normalization 2.2 Definitions of Keys and Attributes Participating in Keys 2.3 First Normal Form 2.4 Pitfalls in Relational-Database Design 2.5 Second Normal Form 2.6 Third Normal Form 2.7 Boyce Codd Normal Form 2.8.De-normalization 2.9 Database Normalization with Case Study **Unit : 3 : Structured Query Language** 3.1. Creating database structure 3.2 Creating table structure 3.3 DDL commands 3.4 DML commands 3.5 Queries 3.5.1 Simple queries 3.5.2 Search conditions

	3.5.3 Defining constraints 3.5.3.1 Table level constraints 3.5.3.2 Column level constrains 3.5.3.3 Primary Key, Foreign key constraints 3.5.4 Operators 3.5.4.1 Logical operators: AND, OR, NOT 3.5.4.2 Special Operators: BETWEEN, IS NULL, LIKE 3.5.5 Range searching and pattern matching 3.5.6 Aggregate functions 3.5.7 In built functions 3.5.7.1 Date functions 3.5.7.2 String functions 3.5.7.3 Conversion functions 3.5.8 Grouping 3.5.9 Sub Queries 3.5.10 Joins 3.5.10.1 Structure of Joins 3.5.10.2 types of joins 3.5.10.3 Using UNION, INTESECT, MINUS clause 3.5.11 Views 3.5.11.1 Definition 3.5.11.2 Creating view 3.5.11.3 Updating view 3.5.11.4 Destroying view **Unit : 4 : Query Processing and Optimization** 4.1 Introduction 4.2 Query Parsing 4.3 Measures of query cost **Unit : 5 : Practical Relational Database Design** 5.1 ER and EER to Relational Mapping 5.2 Relational Database Design Case Study
Reference Book	1. Database System Concepts - Henry F. Korth & AbrahamS[redacted]MH 2. SQL, PL/SQL – The programming Language Oracle-by Ivar[redacted]B 3. Principles of Database Systems - Jeffery Ullman - Galgoti[redacted] 4. An introduction to Database Systems - C.J.Date - Addisor[redacted] 5. Introduction to Database Management - Navin Prakash[redacted] 6. Introduction to Database System - Bipin C. Desai – Galgo[redacted] 7. Fundamental of Database Systems – Elmasri, Navathe – P[redacted]on Wesley
Teaching Methodology	Discussion, Independent Study, Seminars and Assignment
Evaluation Method	30% Internal assessment 70% External assessment

P. M. Desai

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 Class work, examination, preparation, holidays etc.)
Last Review / Revision	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
Pre-requisite	NIL
Course Out come	Students will be able to do client side validation using Java Script, understand basic concepts of XML and jQuery
Course Content	**Client-Side Web Scripting** **Unit : 1 : JavaScript Basics and Object Model** 1.1. HTML to XHTML 1.2. Basic of JavaScript Programming 1.3. The <script> tag – Basic Syntax 1.4. Variables 1.4.1. Expressions 1.4.2. Data Types 1.4.3. Operators 1.5. Arrays 1.6. Working with Text Converting Strings 1.7. Conditional Loops 1.8. Functions 1.9. Entities 1.10. Advanced Math Operations 1.11. Date Object 1.12. Timeout 1.13. Cookies 1.14. Object Model and Event Handling 1.14.1. Programming Using Objects 1.14.2. Navigator Object 1.14.3. Document Object Model 1.14.3.1. Object Hierarchy 1.14.3.2. Properties 1.14.3.3. Methods 1.14.3.4. Events 1.14.4. Events 1.14.5. Event Listeners and Handlers 1.14.6. Window Object 1.14.7. Writing New Windows Dynamically 1.14.8. Alert 1.14.9. Confirm 1.14.10. Prompt Windows 1.14.11. Frames Navigation **Unit : 2 : Manipulating Components** 2.1. The Keyword this 2.2. Forms 2.3. Names vs. IDs 2.4. Arrays of Elements

	2.5. Manipulating the Value of a Text Field 2.6. Text Field Events 2.7. Form Handlers 2.8. Checkboxes 2.9. Radio Buttons 2.10. Selects on Change in Various Form Elements 2.11. Hidden Text Field values 2.12. Dynamically Modifying Select Lists 2.13. Validating Form Entries 2.14. Processing Forms **Unit : 3 : Image Handling and Browser Capabilities** 3.1. Image Swaps 3.2. Graphical Navigational Bar 3.2.1. Rollovers 3.2.2. Pre Caching 3.2.3. Changing Buttons 3.3. Interactive Image Maps Using JavaScript 3.4. Browser detection 3.5. Browser compatibility 3.6. The Location and History Objects 3.7. Screen Object **Unit : 4 : Handling Layers and Introduction to jQuery** 4.1. Using JavaScript to Manipulate the Layer Object 4.1.1. Hide and Show Content 4.1.2. Positioning 4.2. Intoduction to jQuery 4.2.1. Features of jQuery 4.2.2. jQuery Syntax and Selectors 4.2.2.1. Using the $() function 4.2.2.2. CSS, Attribute and custom **Unit : 5 : Extensible Markup Language(XML)** 5.1. XML Fundamentals 5.1.1. XML Syntax 5.1.2. Need of XML in Application Development 5.2. Document Type Definition 5.2.1. DTD, Data Types 5.2.2. Validations 5.2.3. Writing XML using a DTD 5.3. XML Schemas 5.3.1. XML Schemas 5.3.2. Complex Data Types 5.3.3. Sequences 5.3.4. Binary Data Types 5.3.5. Primitive Data Types 5.3.6. Namespaces 5.3.7. Data Validation 5.4. Parsing XML DOM using JavaScript
Reference Book	1. JavaScript Bible, 6th Edition – by Danny Goodman, Mi[redacted]n, Paul Novitski, Tia Gustaff Rayl 2. JavaScript The Complete Reference 3rd Edition - by Th[redacted]ll , Fritz

	Schneider 3. JavaScript Quick Syntax Reference By Mikael Olsson 4. JavaScript: The Definitive Guide, 6th Edition By David Flanagan - O'Reilly Media 5. Xml: The Complete Reference By Heather Williamson – Tata McGraw-Hill Edition 6. Learning jQuery 4th edition, By Jonathan Chaffer, Karl Swedberg 7. Web Development with jQuery, By Richard York – WROX Publication
Teaching Methodology	Class Room Teaching, Discussion and Assignment
Evaluation Method	30% Internal assessment 70% External assessment

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, Preparatio———c.)
Last Review/Revision	June 2017
Purpose of Course	To impart basic practical knowledge of embed——and its applications in IoT
Course Objective	To give practical knowledge to develop basi ing on microcontroller for embedded system
Prerequisite	Basic knowledge of digital logic design, C pro——nguage, microprocessor and computer system,
Course Outcome	Students will be able to develop programs to in——es with embedded system and process control logics using c-
Course Content	Practical based on Paper No 402
Reference Books	NIL
Teaching Methodology	Lab Work
Evaluation Method	30% Internal Assessment 70% External Assessment

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.)
Last Review/Revision	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
Prerequisite	Basic knowledge of DBMS and Object Oriented Programming
Course Outcome	Students will be able to develop GUI based application using .NET framework and SQL
Course Content	Practical based on Paper No 403 and 404
Reference Books	NIL
Teaching Methodology	Lab Work
Evaluation Method	30% Internal Assessment 70% External Assessment

P. M. Desai

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, Preparatio[redacted]c.)
Last Review/Revision	June 2017
Purpose of Course	To impart practical knowledge of client side programm[redacted]
Course Objective	To give practical knowledge of client side programmin[redacted]
Prerequisite	Nil
Course Outcome	Students will be able to perform client side scripting
Course Content	Practical based on Paper No 405
Reference Books	NIL
Teaching Methodology	Lab Work
Evaluation Method	30% Internal Assessment 70% External Assessment