B.Sc. INFORMATION TECHNOLOGY
Syllabus

(Academic year 2015 onwards)

GOVERNMENT ARTS COLLEGE (AUTONOMOUS), COIMBATORE - 641 018
DEPARTMENT OF COMPUTER SCIENCE
B. Sc., Information Technology Syllabi and Scheme of Examinations for the Students Admitted from 2012-2013 academic year onwards

Semester	Part	Code	Title of the Paper	Hrs (wk)	Internal (CA) Marks	External (SE) Marks	Total Marks	SE – Min.	TPM	Credits
I	I	15TAM11L	**Part – I:** Language: Tamil I	6	25	75	100	30	40	3
	II	15ENG12L	**Part –II:** English I	6	25	75	100	30	40	3
	III	15BIT13C	**Core – 1:** Computer Fundamentals and C Programming	5	25	75	100	30	40	3
	III	15BIT14A	**Allied – 1:** Mathematical Foundations for Computer Science	6	25	75	100	30	40	5
	III	15BIT15P	**Practical 1:** C Programming Lab	5	40	60	100	24	40	2
	IV	15ENV1GE	Environmental Studies	2	25	75	100	30	40	2
				30			**600**			**18**
II	I	15TAM21L	**Part – I:** Language: Tamil II	6	25	75	100	30	40	3
	II	15ENG22L	**Part –II:** English II	6	25	75	100	30	40	3
	III	15BIT23C	**Core – 2:** Object Oriented Programming with C++	5	25	75	100	30	40	3
	III	15BIT24A	**Allied – 2:** Computer Oriented Numerical and Statistical Methods	6	25	75	100	30	40	5
	III	15BIT25P	**Practical 2:** C++ Programming Lab	5	40	60	100	24	40	2
	IV	15ENV2GE	Value Education – Gandhian Thoughts	2	25	75	100	30	40	2
				30			**600**			**18**
III	III	15BIT31C	**Core – 3:** Operating Systems	5	25	75	100	30	40	3
	III	15BIT32C	**Core – 4:** Data Structures	5	25	75	100	30	40	3
	III	15BIT33C	**Core – 5:** Java Programming	5	25	75	100	30	40	3
	III	15BIT34P	**Allied – 3:** Digital Computer Fundamentals	6	25	75	100	30	40	5
	III	15BIT35P	**Practical 3:** Java Programming Lab	5	40	60	100	24	40	2
	IV	15BIT36S	**Skill Based Subject – I:** Web Programming	4	25	75	100	30	40	3
				30			**600**			**19**
IV	III	15BIT41C	**Core – 6:** Software Engineering	5	25	75	100	30	40	5
	III	15BIT42C	**Core – 7:** Computer Networks	5	25	75	100	30	40	5
	III	15BIT43C	**Core – 8:** Visual Basic Programming	5	25	75	100	30	40	5
	III	15BIT44P	**Allied – 4:** Computer System Architecture	6	25	75	100	30	40	5
	III	15BIT45P	**Practical 4:** VB Programming Lab	5	40	60	100	24	40	2
	IV	15BIT46S	**Skill Based Subject – II:** Microprocessor &Assembly Language Programming	4	25	75	100	30	40	3
	V		**Extension Activities:** NCC/NSS/P.Ed/YRC	--			---			1
				30			**600**			**26**

	III	15BIT51C	**Core – 9:** Client Server Computing	6	25	75	100	30	40	5
	III	15BIT52C	**Core – 10:** Relational Database Management System	6	25	75	100	30	40	5
	III	15BIT53C	**Core – 11:** Computer Graphics	6	25	75	100	30	40	5
V	III	15BIT54P	**Practical 5:** Relational Database Management System Lab	5	40	60	100	24	40	5
	IV	15BIT55S	**Skill Based Subject – III:** Embedded Systems	4	25	75	100	30	40	3
	IV	15BIT56EL	**Non-Major Elective Paper – I:** Information Technology – I (Fundamentals of Computers)	3	25	75	100	30	40	2
				30			600			25
	III	15BIT61C	**Core – 12:** Scripting Tools	6	25	75	100	30	40	4
	III	15BIT62C	**Core – 13 :** Mobile computing	5	25	75	100	30	40	5
	III	15BIT63p	**Practical 6** : Scripting Tools Programming Lab	5	40	60	100	24	40	5
VI	III	15BIT64V	**Project & Viva – Voce**	7	20	80	100	32	40	15
	IV	15BIT65S	**Skill Based Subject – IV:** Software Project Management	4	25	75	100	30	40	3
	IV	15BIT66EL	**Non-Major Elective Paper – II:** Information Technology – 2 (Office Automation)	3	25	75	100	30	40	2
				30			600			34
			Total / Credits				3600			140

 # These papers are offered by Department of Computer Science to other Major students of the college

* Exam: 3 Hrs

SEMESTER – I

Core 1: COMPUTER FUNDAMENTALS AND C PROGRAMMING

UNIT – I : Fundamentals of Computers : Introduction – History of Computers-Generations of Computers- Classification of Computers-Basic Anatomy of a Computer System-Input Devices-Processor-Output Devices-Memory Management – Types of Software- Overview of Operating System- Programming Languages-Translator Programs-Problem Solving Techniques - Overview of C.

UNIT – II : Overview of C - Introduction - Character set - C tokens - keyword & Identifiers - Constants - Variables - Data types - Declaration of variables - Assigning values to variables - Defining Symbolic Constants - Arithmetic, Relational, Logical, Assignment, Conditional, Bitwise, Special, Increment and Decrement operators - Arithmetic Expressions - Evaluation of expression - precedence of arithmetic operators - Type conversion in expression – operator precedence & associativity - Mathematical functions - Reading & Writing a character - Formatted input and output.

UNIT – III
Decision Making and Branching: Introduction – If , If….Else, nesting of If …Else statements- Else If ladder – The Switch statement, The ?: Operator – The Goto Statement. Decision Making and Looping: Introduction- The While statement- the do statement – the for statement-jumps in loops. Arrays – Character Arrays and Strings

UNIT – IV
User-Defined Functions: Introduction – Need and Elements of User-Defined Functions- Definition-Return Values and their types - Function Calls – Declarations – Category of Functions- Nesting of Functions - Recursion – Passing Arrays and Strings to Functions - The Scope, Visibility and Lifetime of Variables- Multi file Programs. Structures and Unions

UNIT –V
Pointers - Understanding pointers - Accessing the address of a variables - Declaring and initializing pointers - Accessing a variable through its pointer - Pointer expressions -Pointers and arrays - Pointers and character strings - Pointers and functions - Pointers and structures.
File Management in C - Defining and opening a file -Closing a file - Input/Output operations on files - Error handling during **I/O** operations -Random access to files - Command line arguments.
TEXT BOOK
 1. E Balagurusamy: ―COMPUTING FUNDAMENTALS & C PROGRAMMING‖ – Tata McGraw-Hill, Second Reprint 2008, ISBN 978-0-07-066909-3.
REFERENCE BOOK:
 1. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publ, 2002.

2. Henry Mullish & Huubert L.Cooper: The Sprit of C, Jaico Pub. House, 1996.

SEMESTER – I

Allied 1: MATHEMATICAL FOUNDATIONS FOR COMPUTER SCIENCE

UNIT – I
Matrices – Introduction – Determination – Inverse of a matrix – Rank of a Matrix – Eigen value Problems

UNIT – II
Set theory-Introduction-Set & its Elements-Set Description-Types of sets-Venn-Euler Diagrams- Set operations & Laws of set theory-Fundamental products-partitions of sets-minsets-Algebra of sets and Duality-Inclusion and Exclusion principle

UNIT – III
Mathematical logic – Introduction- prepositional calculus – Basic logical operations - Tautologies-Contradiction-Argument-Method of proof- Predicate calculus.

UNIT – IV
Relations – Binary Relations – Set operation on relations-Types of Relations – Partial order relation – Equivalence relation – Composition of relations – Functions – Types of functions – Invertible functions – Composition of functions.

UNIT –V
Graph Theory – Basic terminology – paths, cycle & Connectivity – Sub graphs – Types of graphs – Representation of graphs in compute memory - Trees – Properties of trees – Binary trees – traversing Binary trees – Computer Representation of general trees.

TEXT BOOK
1. Engineering Mathematics Volume II – Dr M.K. Venkataraman – NPC (UNIT I)
2. Discrete Mathematics – J.K. Sharma Second Edition – 2005, Macmillan India Ltd.

REFERENCE BOOKS:
1. Discrete Mathematics Structures with Applications to computer science - J. P Tremblay R Manohar – Mc Graw Hill International Edition.
2. Discrete Mathematics – Dr M. K. Venketaramen, Dr N.Sridharan, N.Chandarasekaran –
 The   National publishing Company Chennai.

SEMESTER – I

Practical 1 : C PROGRAMMING LAB

1. Write a C program to find the sum, average, standard deviation for a given set of numbers.
2. Write a C program to generate ―n‖ prime numbers.
3. Write a C program to generate Fibonacci series. 4. Write a C program to print magic square of order n where n > 3 and n is odd.
4. Write a C program to sort the given set of numbers in ascending order.
5. Write a C program to check whether the given string is a palindrome or not using pointers.
6. Write a C program to count the number of Vowels in the given sentence.
7. Write a C program to find the factorial of a given number using recursive function.
8. Write a C program to print the student's Mark sheet assuming roll no, name, and marks in 5 subjects in a structure. Create an array of structures and print the mark sheet in the university pattern.
9. Write a function using pointers to add two matrices and to return the resultant matrix to the calling function.
10. Write a C program which receives two filenames as arguments and check whether the file contents are same or not. If same delete the second file.
11. Write a program which takes a file as command line argument and copy it to another file. At the end of the second file write the total i)no of chars ii) no. of words and iii) no. of lines.

SEMESTER – II

Core 2: OBJECT ORIENTED PROGRAMMING WITH C++

UNIT – I
Principles of Object Oriented Programming: Software Crisis - Software Evolution - Procedure Oriented Programming - Object Oriented Programming Paradigm - Basic concepts and benefits of OOP - Object Oriented Language - Application of OOP - Structure of C++ - Applications of C++ - Tokens, Expressions and Control Structures - Operators in C++ - Manipulators.

UNIT – II
Functions in C++: Function Prototyping - Call by reference - Return by reference - Inline functions - Default, const arguments - Function Overloading - Classes and Objects - Member functions - Nesting of member functions - Private member functions - Memory Allocation for Objects - Static Data Members - Static Member functions - Array of Objects - Objects as function arguments - Returning objects - friend functions

UNIT – III
Constructors: Parameterized Constructors - Multiple Constructors in a class - Constructors with default arguments - Dynamic initialization of objects - Copy and Dynamic Constructors - Destructors - Operator Overloading - Overloading unary and binary operators

UNIT – IV
Inheritance: Defining derived classes - Single Inheritance - Making a private member inheritable - Multiple inheritance - Hierarchical inheritance - Hybrid inheritance - Virtual base classes - Abstract classes - Constructors in derived classes - Member classes - Nesting of classes.

UNIT – V
Streams: Pointer to object – Virtual functions - Character I/O - Object I/O - I/O with multiple objects - File pointers - Disk I/O with member functions - Exception handling - Templates - Overloading the extraction and the insertion operators.

TEXT BOOKS
1. Robert Lafore, " Object Oriented Programming in C++", Third edition, Galgotia Publications Pvt. Ltd, 2000.

SEMESTER – II

Allied-2: COMPUTER ORIENTED NUMERICAL & STATISTICAL METHODS

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UNIT – I

The Solution of Numerical Algebraic & Transcendental Equations – Bisection method –Newton-Raphson method - The method of false position.
The Solution of Simultaneous Linear Algebraic Equation – Gauss Elimination method –Gauss Jordon Elimination method – Gauss Seidal and – Gauss – Jacobi method of iterations

UNIT – II

Interpolation – Newton Forward and Backward Interpolation formulae – Differentiation - LaGrange's formula – Numerical Integration - Trapezoidal rule - Simpson's One-third rule and three - eighths rule.
     Numerical Solution for Ordinary Differential Equation – -Taylors method - Euler method – Range Kutta method.

UNIT – III

Measures of central tendency – Mean, Median and mode – Relationship between Mean, Median and Mode. Measures of Dispersion – Range ,Quartile Deviation ,Mean deviation and Standard deviation.-coefficient of Variation.

UNIT – IV

Skewness **-** Bowley's and Karl Pearson's Measures of Skewness.-Correlation –Types of Correlation -- Karl Pearson Correlation - Rank Correlation

UNIT – V

Linear Regression - Regression Equations for Two Variables - Regression Coefficients - Properties - Simple Problems.
Curve Fitting: Linear, Parabola, Exponential and Power Curves.

Text Book
1.   Numerical Methods – P. Kandasamy , K. Thilagavathi, K. Gunavathi. S. &company Ltd.
      New   Delhi   Revised Edition 2005
2.   Numerical methods – E. Balagurusamy Tata MC Graw Hill.
3.   Fundamental of Mathematical statistics S C Gupta, V. K. Kapoor **Sultan Chand and Sons**

Reference Book
1. Computer oriented numerical methods – V. Rajaraman, PHI Pub.
2. Statistics –R.S.N. Pillai and V. Bagavathi, Sultan & sons and Company Ltd, NewDelhi, Reprint 2005

SEMESTER – II
Practical 2: C++ PROGRAMMING LAB

OBJECTS and CLASSES

1. Create a Class to implement the data structure STACK. Write a Constructor to initialize the TOP of the Stack to 0. Write a member function PUSH() to insert an element and a member function POP() to delete an element. Check for overflow and underflow conditions.

2. Create a class ARITH which consists of a FLOAT and an INTEGER variable. Write member functions ADD(), SUB(), MUL(), DIV(), MOD() to perform addition, subtraction, multiplication, division and modulus respectively. Write member functions to get and display values.

OPERATOR OVERLOADING

3. Create a class MAT has a 2-D matrix and R & C represents the rows and columns of the matrix. Overload the operators +, -, *, to add, subtract and multiply two matrices. Write member functions to get and display MAT object values.

4. Create a class STRING. Write member functions to initialize, get and display strings. Overload the operator + to concatenate two strings, == to compare 2 strings and a member function to find the length of the string.

INHERITANCE

5. Create a class which consist of EMPLOYEE detail like eno, ename, dept, basic salary, grade. Write member functions to get and display them. Derive a class PAY from the above class and write a member function to calculate da, hra, pf depending on the grade and display the Payslip in a neat format using console I/O.

6. Create a class SHAPE which consist of two VIRTUAL FUNCTIONS Cal_Area() and Cal_Peri to calculate Area and Perimeter of various figures. Derive three classes SQUARE, RECTANGLE AND TRIANGLE from the class SHAPE and calculate Area and Perimeter of each class separately and display the result.

7. Create two classes which consist of two private variables, one Integer and one Float variable in each class. Write member functions to get and display them. Write a FRIEND function common to both classes which takes the object of the above two classes as arguments and the Integer and Float values of both the objects separately and display the result.

CONSOLE I/O

8. Write a user-defined function USERFUN () which has the formatting commands like setw (), showpoint , showpos , precision (). Write a program which prints an multiplication table and uses USERFUN () for formatting.

FILES

9. Write a program to perform insertion, deletion and updation using files.

10. Write a program, which takes a file as argument and copies into another files With line numbers using Command Line Arguments.

SEMESTER – III

Core 3: OPERATING SYSTEMS

UNIT – I
INTRODUCTION AND PROCESS CONCEPTS: Definition of DOS – Early History – History of DOS and UNIX OS – Definition of process – process states – process state transition – interrupt processing – interrupt classes – context switching – semaphores – deadlock and indefinite postponement.

UNIT – II
STORAGE MANAGEMENT REAL STORAGE: Real storage management strategies – contiguous Vs non-contiguous storage allocation – single user contiguous storage allocation – fixed partition multiprogramming – variable partition multiprogramming – multiprogramming with storage swapping.
VIRTUAL STORAGE: Virtual storage management strategies – page replacement strategies – working sets – demand paging – page size.

UNIT – III
PROCESSOR MANAGEMENT JOB AND PROCESSOR SCHEDULING:
Preemptive Vs non-preemptive scheduling – priorities – deadline scheduling – FIFO – RR – quantum size – SJF – SRT – HRN.
DISTRIBUTED COMPUTING: Classification of sequential and parallel processing – array processors – dataflow computers – multiprocessing – fault tolerance.

UNIT – IV
DEVICE AND INFORMATION MANAGEMENT
DISK PERFORMANCE OPTIMIZATION: Operation of moving head disk storage – need for disk scheduling – seek optimization – FCFS – SSTF – SCAN – RAM disks – optical disks.
FILE AND DATABASE SYSTEMS: File system – functions – organization – allocating and freeing space – file descriptor – access control matrix.

UNIT – V
UNIX: Introduction – History – The Shell – The Kernel – file systems – Process management - Memory management – The I/O systems.

TEXT BOOKS
1. H.M Deitel., "Operating Systems", 2nd Edition, Pearson Education Publ., 2003.

REFERENCE BOOKS
1. Achyut S Godbole, "Operating Systems", TMH Publ., 2002.

SEMESTER – III

Core 4: DATA STRUCTURES

UNIT – I

Introduction – Overview – How to create programs and analyse them – Arrays – Structures – Ordered Lists – Representation of arrays – Simple Applications**.**

UNIT – II

Stacks and Queues – Fundamentals – Structure – Operations – Multiple stacks and queues – Applications – Evaluation of Expressions.

UNIT – III

Linked Lists – Single linked lists – Linked stacks and queues – The Storage pool – Applications – Polynomial addition, Sparse matrices.
Double Linked lists – Dynamic storage management – Garbage collection and compaction.

UNIT – IV

Searching and sorting Binary, Sequential and Fibonacci – Internal sorting – Insertion, Quick, merge, heap, radix sorts – External sorting – Sorting with disks – K-way merging – sorting with tapes – Balanced merge – Polyphase merge.
Symbol tables – Static tree – Dynamic tree – Hash tables.

UNIT – V

Files – Queries and sequential organizations – Index Techniques.   File Organizations – Sequential, Random, Linked Organizations – Inverted Files – Cellular Partitions.

TEXT BOOKS
1. Ellis Horowitz & Sartaj Sahani "Fundamentals of data Structure", Galgotia Books source, 1999.

REFERENCE BOOKS

1. Ashok N Kamthane, "Programming and Data Structures", Pearson Education, 2004.

SEMESTER – III

Core 5: JAVA PROGRAMMING

UNIT – I

JAVA Evolution History – Features – How Java Differs from C and C++ – Java and Internet – Java and WWW – Web Browsers. Overview of Java Language Introduction –Simple Java Program – Structure – Java Tokens – Statements – Java Virtual Machine.

UNIT – II

Constants – variables – Data types – Operators and Expressions. Decision Making and Branching If, If..else, else..If Ladder, switch, ? operator. Decision making and looping while, do, for – jumps in loops – labeled loops. Classes, Objects and Methods

UNIT – III

Arrays, Strings and Vectors – Interfaces Multiple Inheritance – Packages Putting classes together – Multi Threaded Programming.

UNIT – IV

Managing Errors and Exceptions – Applet Programming – Graphics programming.

UNIT – V

Files Introduction – Concepts of Streams – Stream classes – Using Streams – I/O classes – File class – I/O Exceptions – creation of files – Reading / Writing characters / Bytes –Handling primitive data types – Random access Files.

TEXT BOOKS
1. E. Balagurusamy "Programming with Java - A Primer", TMH Publ., 2nd Edition, 2000.

REFERENCE BOOKS
1. Patric Naughton, and Herbert Schildt "The Complete Reference Java 2" Tata McGraw Hill Publishers, 2000.

2. C. Xavier "Programming with Java 2", Scitech Publ., 2000.

SEMESTER –III

Allied -3: DIGITAL COMPUTER FUNDAMENTALS

UNIT – I
Number Systems: Decimal, Binary, Octal, Hexadecimal – conversion from one to another – Binary Addition, Subtraction, Multiplication and Division – Codes – BCD – Weighted – Excess-3 – Gray – Error Detection Codes.

UNIT – II
Basic Logic Gates – Boolean Laws and Theorems – Sum of Products – Product of Sums – Karnaugh Map – Simplification methods – Don't Care Conditions.

UNIT – III
Data Processing Circuits: Multiplexers – Demultiplexers – Decoders – Encoders Arithmetic building blocks: Half Adder, Full Adder, Subtractor, Adder – TTL Circuits – CMOS Circuits.

UNIT – IV
Flip Flops: RS, Clocked RS, D, - Edge triggered D, JK, JK Master/Slave Flip Flops Clocks and Timers: Counters – Asynchronous Counters – Synchronous Counters, MOD-3, MOD-5, Shift Counters.

UNIT – V
D/A And A/D Conversion: Variables – Resistors Network Binary Ladder – D/A Converter – D/A Accuracy and Resolution – A/D Converter (Simulations Conversion) – A/D Converter (Counter Method) – Continuous A/D Conversion – A/D Techniques – Dual – Slope A/D Conversion

TEXT BOOK
1. "Digital Principles and Applications" – Albert Paul Malvino, Donald, P. Leach, McGraw Hill, 2002

REFERENCE BOOK
1. "Digital Computer Fundamentals" – Bartee, Tata McGraw Hill, 1996

2. Digital Logic & Computer Design, Morris Mano, PHI, 2001

SEMESTER – III

Practical 3: JAVA PROGRAMMING LAB

LIST OF PRACTICALS

1.Write a program to print the following triangle of numbers
  1
  12
  123
  1234
  12345

2.Define a class with the following attributes
  1)   Name
  2)   Date of birth
  3)   Date on which leg injection has to be given
        (60 days from date of birth)
  4)   Date on which polio drops is to be given
        (45 days from date of birth)
  Write a constructor to construct the baby object. The constructor must find out the leg and polio drops dates from the date of birth. In the main program define a baby and display its details.

3.Write a program which creates and displays a message on the window.

4.Write a program to draw several shapes in the created window.

5.Write a program to create an applet and draw grid lines.

6.Write a Java program to create a frame with two buttons called father and mother. When we click the father button the name of the father, his age and designation must appear. When we click mother similar details of mother appear.

7.Write a Java Program to create a frame with Three Text fields for the Name, Age, Qualifications and a Text field of multiple lines for Address with suitable labels. Also add a button called my details. When you click the button your Name, Age, Qualifications and Address must appear in the respective Text fields.

8.Write a Java program to demonstrate the multiple selection list boxes.

9. Write a program to create a canvas which displays a clock with hour hand and minute hand depending upon an int variable minutes. Write another program with a frame which displays the clock canvas. It must also have three buttons, tick, reset and close. When we click reset, the clock must reset to 12 hrs. When we click close, the frame closes.

10. Write a Java program to create a menu bar and pull down menus.

11. Write a Java program to create a window when we press
M or m the window displays Good Morning.
A or a the window displays Good Afternoon.
E or e the window displays Good Evening
N or n the window displays Good Night

12. Write a program to move different shapes (Circle, Ellipse, Square, Rectangle) according to the arrow key pressed.

13. Write a Java program to create a frame which responds to the mouse click. For each event with mouse (such as mouse up, mouse down etc) the corresponding message must be displayed.

14. Write a program to draw circle, ellipse, square, and rectangle at the mouse click position.

15. Write a program to handle the divide by zero exception.

16. Write a program to create an exception called pay out of bounds and throw the exception.

17. Write a Java program to explain the multithreading with the use of multiplication tables. Three threads must be defined. And each one must create one multiplication table; they are 5 table. 7 table and 13 table.

18. Write a program to illustrate thread priority. Create three threads and assign three different priorities.

SEMESTER – III

Skill Based Subject-I: WEB PROGRAMMING

UNIT – I
INTRODUCTION: Basics of web- web page – web site – Internet Vs WWW- Domain Names - Do's and Dont's of creating a web site - .Choosing a web host and getting your own website

UNIT – II
HTML: Structure of HTML Program – Core Elements – Links and Addressing – Images –Layout Design – Tables – Frames – Form

UNIT – III
CSS :   Style sheet Basics – Adding Style to a Document – Creating Style Rules – Fonts – Text Formatting – Padding, Margins & Borders – Colors and Backgrounds – Tables – Element Positioning.

UNIT – IV
VB SCRIPT: Basics – Internal VBScript - External VBScript - Data Types – Variables – Array – Lifetime - Controls Structures – Operators – Functions

UNIT – V
CASE STUDY: Multimedia in Web site - Study of Adobe Photoshop and Macromedia Flash

TEXT BOOKS
1. Bryan Pfaffenberger, Steven M Schafer, Chuck White and Bill Karow, "HTML, XHTML, & CSS Bible", Wiley Dreamtech, New York, 2004.
2. Thomas A Powell, "HTML –The Complete Reference", Tata McGraw Hill, New Delhi, 2006.

REFERENCES
1. Paul Lomex, Matt Childs, Ron Petrusha, "VBScript in a nutshell", O'Reilly, 2003
2. Eric A Meyer, "Cascading Style Sheets: The Definitive Guide", O'Reilly Publications, UK, 2000
3. Dick Oliver, Michael Morrison, "HTML and CSS", Pearson Education, 2006

SEMESTER – IV

Core 6: SOFTWARE ENGINEERING

UNIT – I
INTRODUCTION: The Evolving Role of Software - Software Crisis - Software Myths. THE PROCESS: S/w Engineering: A layered technology – The s/w Process – s/w Process Model – The Prototyping Model.

UNIT – II
SYSTEM ENGINEERING: Requirements Engineering – System Modeling. ANALYSIS CONSEPTS AND PRINCIPLES: Requirements Analysis and Elicitation for s/w – Software Prototyping – Specification – ANALYSIS MODELING: The Elements of Analysis Model - Data Modeling -- Functional Modeling and Information Flow-- The Mechanics of Structured Analysis – The Data Dictionary

UNIT – III
OBJECT ORIENTED DESIGN: Design for Object Oriented Systems – The System Design Process. DESIGN CONCEPTS AND PRINCIPLES: s/w Design and s/w Engineering – The Design Process – Design Principles – Design Concepts – Effective Modular Design – Design Heuristics for Effective Modularity.

UNIT – IV
ARCHITECTURAL DESIGN: Mapping Requirements into a s/w Architecture – Transform Mapping- Transaction Mapping. USER INTERFACE DESIGN: User Interface Design -- Interface Design Activities. S/W TESTING TECHNIQUES: s/w Testing Fundamentals – White Box Testing – Basis Path Testing – Control Structure Testing – Black Box Testing.

UNIT – V
SOFTWARE TESTING STRATEGIES: A Strategic Approach to s/w Testing – Validation Testing – System Testing – The Art of Debugging. TECHNICAL MATRICS FOR S/W: S/w Quality. REENGINEERING: s/w Reengineering – Reverse Engineering. COMPUTER – AIDED S/W ENGINEERING: Building Blocks for CASE – A Taxonomy of CASE Tools.

TEXT BOOKS
1. Roger S. Pressman, "Software Engineering", Tata McGraw Hill Publishing Company Pvt. Ltd, 5th Edition.

REFERENCE BOOKS
1. Watts S Humphrey, "A discipline for software Engineering", Pearson Education Publ., 2001.
2. Ian Somerville, "Software Engineering", 6th Edition, Pearson education Publ., 2001.

SEMESTER – IV

Core 7: COMPUTER NETWORKS

UNIT – I
Introduction The Uses of Computer Networks – Networks hardware – Network software – Reference models.

UNIT – II
The Physical Layer Transmission Media – Communication satellites – Wireless transaction-Telephone system

UNIT – III
The Data Link layer Data link layer Design Issues – Error Detection and Correction-Elementary Data link protocols. Medium Access Sub layers The channel allocation problem – Multiple access protocols Carrier sense multiple access protocols, collision –free protocols, Limited.

UNIT – IV
The Network Layer – Network Layer Design Issues – Routing Algorithms The optimality principle, shortest path routing, flooding, and distance vector routing, routing for mobile hosts.

UNIT – V
The Transport Layer – The Transport service – Services provided to the upper layers, transport service primitives – Elements of Transport protocols. Application Layer – DNS – The Domain Name System – Electronic mail – Architecture and services, the user agent.

TEXT BOOKS
1. Andrew S. Tanenbaum, "Computer Networks", 3rd or 4th Edition, Pearson Education Publ.

REFERENCE BOOKS
1. Miller, "Data and Network Communications", Viaks Publ., 2001.

2. William A Shay, "Understanding data communications and Networks", 2nd Edition, Vikas Publ., 2001.

SEMESTER – IV

Core 8: VISUAL BASIC PROGRAMMING

UNIT –I
Introduction - VB Environment – VB Fundamental: Constants, Variables, Data Types, Data Declaration – Operators – Expressions – Library Functions.

UNIT –II
Branching And Looping: If...Then, If-Then-Else, Else If, Nested If, Selected-Case, For-Next, Do-Loop, While-Wend, Nested Loops, Stop Statement. VB Controls: Textbox – Checkbox – List Box – Combo Box –Label – Command Button – Directory List –Box –Drive List Box. Assigning Values to Forms and Controls – Naming Controls and Forms – Executing Commands – Displaying O/P Data – Assigning Properties Collectively Using 'With' Block

UNIT –III
Timer Control, Scroll Bar, Message Box (), Input Box (), Functions, MDI Forms, Menus And Dialog Boxes: Building Drop – Down Menus, Sub Menus - Pop - Up Menus –Dialog Boxes – Debugging And Executing A Projects –Error Handling –Convert –VB Project To Exe File – Procedures – Scope- Optional Arguments.

UNIT –IV
Arrays –Parsing Arrays To Procedures- Dynamic Arrays –Array Function –Control Arrays –Data Files –Processing A Data Files –Sequential File –Random Access File.

UNIT –V
Database Programming With VB: Understanding Database Management Systems –Understanding Relation Concepts – Using Visual Data Manager- Validating Data – Enter Data –Accessing Fields In Record Sets –SQL – Advanced Data –Bound Controls –Managing Databases. Active Data Objects: Crating Data Project –Designing With The Data Environment Active x Designer –Ado Data Control.

TEXT BOOKS:
1. Byron S. Gottfried, Ph.D, "Visual Basic" Schaum's Outlines.
2. Gary Cornell , "Visual Basic 6 from the GROUND UP" , TATA McGRAW- HILL EDITION.

REFERENCE BOOKS:
1. David Jung, Pierre Boutquin , John D.Conley III , Loren Eidahl , Lowell Mauer , Jack Purdum , "Visual Basic 6 , Super Bible" , Techmedia.
2. Peter Wrights , " Beginning Visual Basic 6 " , SPD .
3. Steven Holzner , "Visual Basic 6 Black Book ", Dreamtech Press , 2000.

SEMESTER – IV

Allied -4: COMPUTER SYSTEM ARCHITECTURE

UNIT – I
Data Representation: Fixed point representation – Floating point representation – Alphanumeric code.
Register Transfer and Micro operation: Register Transfer Language – Register Transfer – Arithmetic Micro operation – Logic Micro operation – Shift Micro operation – Arithmetic Logic Shift Unit.

UNIT – II
Basic Computer Organization and Design: Instruction Codes – Timing and Control – Computer Register – Instruction Cycle – Input-Output and Interrupt.
Micro-Programmed Control: Control Memory – Address Sequencing – Design of Control Unit.

UNIT – III
Central Processing Unit: General Register Organization – Stack Organization – Instruction Formats – Addressing Modes – Data Transfer and Manipulation – Programmed Control – Reduced Instruction Set Computer – CISC.

UNIT – IV
Computer Arithmetic: Addition and Subtraction – Multiplication Algorithm – Division Algorithm – Floating-point Arithmetic operation – Decimal Arithmetic Operations.
Input Output Organization: Peripheral Devices – Input Output Interface – Asynchronous Data Transfer – Modes of Transfer – Direct Memory Access – Input Output Processor (IOP).

UNIT – V
Memory Organization: Memory Hierarchy – Main memory – Auxiliary memory – Associative memory – Cache memory – Virtual memory.
Multiprocessors: Characteristics of Multiprocessors – interconnection Structures.

TEXT BOOKS
1. Computer System Architecture – M. Morris Mano (Third Edition), PHI, 2001.

REFERENCE BOOKS
1. Computer Architecture and Organization, Hayes. J. P., McGraw Hill, 1998.

SEMESTER – IV

Practical 4: VISUAL BASIC PROGRAMMING LAB

VISUAL BASIC

1. Write a simple VB program to accept a number as input and convert them into
   a. Binary
   b. Octal
   c. Hexa-decimal

2. Write a simple VB program to add the items to list box with user input and move the selected item to combo box one by one.

3. Write a simple VB program to develop a calculator with basic operation.

4. Design an form using common dialog control to display the font, save and open dialog box without using the action control property.

5. Write a simple program to prepare a Questionnaire.

6. Write a VB Program to develop a menu driven program
   a. Add a MDI window in the form and arrange them in the cascading/horizontal
   b. style using menus (Create a menu to add form, arrange) (Menu Item 1).
   c. Also change the form color using the menu in another menu item (Menu Item 2).

7. Write a VB application for Student Mark List Processing System.

8. Write a VB application for exercising (B.Sc., Information Technology) UG Admission in Government Arts College, Coimbatore.

9. Write VB coding for Font application.

10. Write a VB program for exercising Notepad application.

SEMESTER – IV

Skill Based Subject II: MICRO PROCESSOR & ASSEMBLY LANGUAGE PROGRAMMING

UNIT – I
Introduction to Microprocessors – Evolution of Microprocessors- Buses -Microprocessor Architecture: Intel 8085 – ALU - Timing and control unit – Registers - Pin configuration - Instruction cycle: Fetch and Execute operation - Machine cycle and state.

UNIT – II
Instruction set of INTEL 8085: Introduction – Instruction and Data formats - Addressing Modes - Status Flags - Intel 8085 Instructions: Data transfer group – Arithmetic group- Logical group - Branch group - Stack, I/O machine control group - Assembly language: stacks – subroutines – MACRO.

UNIT – III
Assembly language programming - Addition of two 8-bit numbers - 8-bit subtraction -Decimal addition of two 8-bit numbers - Addition of two 16-bit numbers - 8-bit decimal subtraction - finding square from look-up table - Finding largest number in a data array - Arrange a data array in ascending and descending order - Sum of series of 8-bit numbers - 8-bit multiplication - 8-bit division.

UNIT – IV
Peripheral devices and their interfacing: Address space partitioning - Memory and I/O interfacing - Interrupts of Intel 8085 - I/O ports: Programmable Peripheral interface - Architecture of Intel 8255.

UNIT –V
Programmable DMA controller - Programmable interrupt controller 8259 - Programmable communication interface 8251 - Programmable counter/interval timer 8253.

TEXT BOOKS
1. B.RAM, "Fundamentals of Microprocessors and Microcontrollers," Dhanpat Rai Publications, 7th Edition, 2010.

REFERENCE BOOKS
1. Ramesh Gaonkar, "Microprocessor Architecture, Programming and Applications with the 8085", Penram International publishing (India) PVT. LTD., 6th Edition, 2013.

2. Aditya P Mathur,"Introduction to Microprocessors", McGraw Hill Education (India) Private Limited, 3rd Edition, 2001.

SEMESTER –V

CORE 9: CLIENT SERVER COMPUTING

UNIT – I

Client – Server computing – What is Client / Server ? – File servers, Database servers, Transaction servers, Groupware servers, Object servers, Web servers – FAT servers or client / server – Client / Server building blocks

UNIT – II

Client / Servers and operating systems – The Anatomy of a server program – Needs of Client / Server from an OS – server scalability – Client anatomy – Client and server OS trends – Client OS and Server OS.   NOS: Creating the single system image – Remote Procedure Calls (RPC) – Messaging and Queueing: The MOM Middlew*a*re

UNIT – III

SQL Database Servers: What does SQL do ? – The ISO standards – What does a database server do ? – Stored procedures, Triggers and Rules.   Data warehouses –   OLTP   OnLine   Transaction Processing) –   Decision Support Systems (DSS) – Executive Information system (EIS) – comparing Decision Support and OLTP systems – Production vs Information Databases – The data ware house

UNIT – IV

Client / Server Transaction Processing – The ACID properties – Transaction Models – TP monitors – Client / Server groupware – Importance of Groupware – What is Groupware – The components of Groupware. Distributed Objects, CORBA style – Object management architecture – Compound Documents – The compound document frame work

UNIT – V

Web client / server – What is URL? – Shortest HTML tutorial – HTTP – 3 tier client / server – HTML web based forms – CGI : The server slide of the web – web security – The internet and the intranets – Compound documents and the object web – The DCOM / OLE Object Web – The CORBA object web.

TEXT BOOKS

Robert Orfali, Dan Harkey & Jeri Edwards, " The Essential Client / Server Survival Guide", Galgotia Publication Private Limited, Second Edition, 2002

SEMESTER – V
CORE 10: RELATIONAL DATABASE MANAGEMENT SYSTEM

UNIT - I

Database Concepts: A Relational approach: Database – Relationships – DBMS – Relational Data Model – Integrity Rules – Theoretical Relational Languages.

Database Design: Data Modeling and Normalization: Data Modeling –Dependency – Database Design – Normal forms – Dependency Diagrams - Denormalization – Another Example of Normalization.

UNIT - II

Oracle9*i*: Overview: Personal Databases – Client/Server Databases – Oracle9i an introduction – SQL *Plus Environment – SQL – Logging into SQL *Plus – SQL *Plus Commands – Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - *i*SQL *Plus. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

UNIT - III

Working with Table: Data Management and Retrieval: DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – retrieving Data from Table – Arithmetic Operations – restricting Data with WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE command – CASE structure. **Functions and Grouping**: Built-in functions –Grouping Data. **Multiple Tables: Joins and Set operations**: Join – Set operations.

UNIT   -   IV

A Programming Language: History – Fundamentals – Block Structure –Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators.

Control Structures and Embedded SQL: Control Structures – Nested Blocks –SQ L in PL/SQL – Data Manipulation – Transaction Control statements. **PL/SQL Cursors and Exceptions:** Cursors – Implicit & Explicit Cursors and Attributes – Cursor FOR loops – SELECT…FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.

UNIT - V

PL/SQL: UNIT-V: PL/SQL Composite Data Types: Records – Tables –V arrays. **Named Blocks**: Procedures – Functions – Packages –Triggers –Data Dictionary Views.

TEXT BOOKS
DATABASE SYSTEMS USING ORCLE – **Nilesh Shah,** 2nd edition, PHI.

REFERENCE BOOKS

1. DATABASE MANAGEMNET SYSTEMS **– Arun Majumdar & Pritimoy Bhattacharya**, 2007, TMH.

2. DATABASE MANAGEMETN SYSTEMS **– Gerald V. Post,** 3rd edition,TMH.

SEMESTER – V

Core 11: COMPUTER GRAPHICS

UNIT - I

Overview of Graphics System – Display Devices – CRT – Random Scan and Raster Scan Monitors – Techniques for Producing Color Display – Beam – Penetration and Shadow – Mask Methods – DVST – Plasma – Panel Displays – Hardcopy Devices – Printers and Plotters – Display Processors – Output Primitives – DDA and Bresenham's line drawing algorithms – Antialiasing lines – Bresenham's Circle Algorithm – Character Generation.

UNIT - II

Two-dimensional Transformations – Scaling, Translation and Rotation – Matrix Representations – Composite Transformations – Reflection – Shearing. Windowing and Clipping – Concepts – Cohen and Sutherland Line Clipping Algorithm – Midpoint Subdivision.

UNIT - III

Interactive Input Methods – Keyboard – Light Pens – Tablets – Joysticks – Track ball – Mouse – Picture construction Techniques – Pointing and Positioning – Rubber band methods – Dragging.

UNIT - IV

Three-Dimensional Concepts – Display Techniques – Parallel Projection – Perspective Projection – Three-Dimensional Transformations for Scaling, Translation – Rotation, Reflection, Shearing.

UNIT - V

Hidden-Surface and Hidden-Line removal – Back face removal – Depth Buffer Method – Scan Line Method – BSP Tree Methods – Depth-Sorting Method – Area-subdivision Method – Octree Methods – Comparison of Hidden-Surface Methods.

TEXT BOOKS

1. Donald Hearn and Pauline Baker, Computer Graphics, Prentice Hall of India, 2001.

SEMESTER – V

Practical 5: Relational Database System Management Lab

1. Create the following table *(PK - Primary Key, FK – Foreign Key)* **cat_head,
   route_head, place_head, route_detail, ticket_detail, ticket_head** with the
   mapping given below:
   cat_head route_head
   (cat_code PK) (cat_code FK)
   route_head route_detail
   (route_id PK) (route_id FK)
   ticket_head ticket_detail
   (tick_no PK) (tick_no FK)
   place_head route_detail
   (place_id PK) (place_id FK)
       Alter the table ticket_header to add a check constraint on ticket_no to accept
   values between 1 and 500
   (ii) Alter table route_header to add a column with data type as long.

2. (a) Insert values to above tables
   (b) Display only those routes that originate in madras and terminate at cochin
   (c) Display only distinct category code from the table route_header in descending manner.
   Update the table route_header to set the distance between madras and coimbatore as 500

3. **(**a) Select rows from ticket_details such that ticket number greater than any
   ticket_number inTicket_header.
   (b) Select rows from route_header such that the route_id are greater than all route_id
   in route_detail
   Where place id is "100".
   (c) Create view tick from ticket_header with Ticket_no, Origin, Destination, route_id

4. Create tables as given below :
   Student (SID INTEGER PRIMARY KEY, name CHAR(30), age INTEGER, GPA FLOAT)
   Take (SID INTEGER,CID CHAR(10),PRIMARY KEY(SID, CID))
   Course (CID CHAR(10) PRIMARY KEY,title VARCHAR(100) UNIQUE)

5. **Insert 6 records for each table and print the following :**
   Details of all students
   Name, course title and GPA of all students.

6. **Create Employee table with the following fields :**
       EmployeeID, LastName, FirstName, HireDate, City
       Insert required records into the table and write select statements for the following queries
       Select employees where City <> 'London'

Select employees where HireDate >= '1-july-2012'
Select employees where HireDate lies between '1-june-1992' and '15-december-1993')
Select employees where City IN ('Seattle', 'Tacoma', 'Redmond')
Select employees ORDER BY Country ASC, City DESC

Create tables as given below :
Personal-data (emp-id, emp-name, dob, qualification, specialization)
Budjet-actuals (emp-id, dept-id, proj-id, acc-code)
Create another table new-employee by selecting records from personal-data where personal-data.emp-id = budjet-actuals.emp-id and acc-code = 3, order by emp-id.

7.   Write a cursor to a cursor to select the five highest paid employees from the emp table
     (ename, empno,   sal)ORDER BY sal DESC;

8.   Write a pl/sql block to modify the the `accounts` table according to instructions stored in the
     `action` table. Each row in the `action` table contains an account number, an action to be taken (I,
     U, or D for insert, update, or delete), an amount by which to update the account
          On an insert, if the account already exists, an update is done instead. On an update, if the
          account does not exist, it is created by an insert. On a delete, if the row does not exist, no
          action is taken
          Accounts (acc-id, balance)
          Action(acc-id, option, new-value)

9. Generate a report from the table ticket_detail for the particular ticket_no

10. Write a PL/SQL block to update the bus_station to be "ERODE" where place_id is
     '01' or '05' [place_header]
     (b) Write a PL/SQL block to satisfy the following condition by accepting the route_id as
     user input. If the distance is less than 500 than update the fare to be 200
     (c) Write a Database trigter before insert for each row on the table route_detail not
     allowing transaction on Saturday / Sunday
     (d) Write a Database trigger before delete for each row not allowing deletion and
     give the appropriate message on the table route_details

11.   Create employee table. Display eno,ename, dept no, current monthly salary and the adjusted
monthly salary yto satisfy the following pay increase scenario. All employees with deptno 10 will
receive a 5% increase, deptno 20 a 7% increase and all other departments will maintain their current
salary

SEMESTER –V

SKILL BASED SUBJECT III: EMBEDDED SYSTEMS

UNIT –I
Introduction to Embedded System: An Embedded System – Processor in the System – Other Hardware units – Software embedded into a system – Exemplary embedded system – Embedded system on chip and in VLSI circuit. Processor and Memory organization: Structural units in a processor – Processor selection – Memory devices – Memory selection - Allocation of memory – DMA – Interfacing processor, memories and I/O devices

UNIT –II
Devices and buses for device networks: I/O devices – Timer and counting devices –
Serial communication – Host system. Device drivers and Interrupts servicing mechanism: Device drivers – Parallel port device drivers – Serial port device drivers – Device drivers for IPTD – Interrupt servicing mechanism – Context and the periods for context-switching, dead-line and interrupt latency

UNIT– III
Programming concepts and embedded programming in C and C++: Software programming in ALP and C – C program elements – Header and source files and processor directives – Macros and functions – Data types – Data structures – Modifiers – Statements – Loops and pointers – Queues – Stacks – Lists and ordered lists – Embedded programming in C++ - Java – C program compiler and cross compiler – Source code for engineering tools for embedded C / C++ - Optimization of memory needs

UNIT–IV
Program modeling concepts in single and multi processor systems: Modeling process for software analysis before software implementation – Programming models for event controlled or response time constrained real time programs – Modeling of multiprocessor systems.Software engineering practices: Software algorithm complexity – Software development process life cycle and its models – Software analysis – Software design – Implementation – Testing, Validation and debugging – Software maintenance

UNIT –V
Inter-process communication and synchronization of processes, tasks and threads: Multiple processor – Problem of sharing data by multiple tasks and routines – Inter process communication. Real time operating systems: Operating system services – I/O subsystem – Network operating systems – Real time and embedded operating systems – Interrupt routine in RTOS environment – RTOS task scheduling – Performance metric in scheduling

TEXT BOOKS
Raj Kamal, " Embedded Systems – Architecture, Programming and Design", MH, 2007

SEMESTER – V
Non-Major Elective Paper I: INFORMATION TECHNOLOGY – I
(Fundamentals of Computers)

Subject Description
This course presents the basics of data and information, acquiring graphical data, data Storage, Computer software, Computer networks, Data organization.

Goal
To enable the students to learn the basic types of data, image compression fundamentals, memory cell, CPU

Objectives
On successful completion of the course the students should have:
- Understood the concepts of data and information.
- Understood the concepts of data storage, Software, Hardware and Internet.

UNIT – I
Introduction and Data Representation in Digital Computers: Historical Background of computing-Merits and limitations of computers-First to Fifth Generation of Computers-Characteristics of Computers-Classification of Computers.

UNIT – II
Representation of Characters, Integers and Fractions-Octal and Hexadecimal number systems-Signed-Fixed and floating point number representations-BCD Code-Gray Code-ASCII Code.

UNIT – III
Building blocks of Computer: Anatomy of Digital Computer : Functions of CPU , ALU and Control Units.
Data Storage: Introduction – Memory Units : RAM, ROM, EPROM,EEPROM.

UNIT – IV
Input Devices: Keyboard, Mouse, joystick, MICR, OCR, Barcoding, Speech**.**
Output Devices: Printers, Plotter, VDU, Graphic Display Devices.

UNIT – V
Auxiliary Storage Devices: Magnetic Tapes, Magnetic Disks, Floppy Disks, Hard Disks and Drives.
CD-ROM, other Optical Devices: WORM, Erasable optical disks, touch Screen optical device**.**

REFERENCE BOOKS
1. R.Rajaram, "Basic Computer Science and Communication Engineering", Scitech Publications,1998.

SEMESTER – VI

Core 12: SCRIPTING TOOLS

UNIT – I
Introduction of PHP : What is PHP? Advantages of PHP – An overview of PHP –PHP Language structure: the building blocks of PHP –variables-Data types –typecasting –operator and Expressions – Constants.

UNIT - II
Flow control functions in PHP : Switching Flow –Loops-code block and browser output-arrays-creating arrays-array relate functions –working with functions-calling functions-Defining –return value from user define functions- variable scope –static statement.

UNIT –III
Working with String, Date and Time : Formatting-string with PHP –Investigating string in PHP – Manipulating string with PHP –using Date and Time functions –other functions –Inheritance –create object.

UNIT –IV
Working with forms: creating a simple Input form –Accessing from- combining HTML and PHP code on single page –using hidden fields to save state –redirecting the user –working with file uploads – working with cookies and user sessions : Introducing cookies- setting of cookie with PHP –Deleting a cookie with PHP –working with session variables –destroying sessions and Un setting variables.

UNIT –V
Working with Files: Creating and Deleting file –opening n file for writing, reading or appending – working with directories : opening pipes to and from process using popen() – running commands with exec(), system() or passthru() - working with images: Understanding the image creation process-drawing n new image- modifying existing images –using images created by scripts .
Introduction to MYSQL: Data Types- queries-create database, delete, update, select.

TEXTBOOKS
1. Julie C. Meloni , "PHP, MYSQL and Apache", Dorling Kindersley(India) Pvt Ltd, 2005.
2. Sheldon Moes "Begining MYSAL", Wiley Publications, Fourth Edition,2005

REFERENCE BOOKS
1. Jeremy Allen & Charles Hornberger "PHP, Apache, MYSQL, Web Development", Wiley Publications, 2006
2. Vikram, Vaswani, "A Beginner's Guide PHP" Tata McGraw Hill, Fourth Edition, 2005

SEMSTER – VI

Core 13: MOBILE COMPUTING

UNIT –I

Introduction: Mobility of Bits and Bytes –Wireless The Beginning –Mobile Computing – Dialogue Control – Networks – Middleware and Gateways – Application and services-Developing Mobile computer Applications – security in mobile computing – Standards _ Why is it necessary –Standard bodies.

UNIT –II

Mobile Computing Architecture: History of computers and Internet – Architecture for mobile computing – Three-tier architecture – Design considerations for mobile computing – Mobile computing through Internet – Making exiting applications mobile enabled.

UNIT –III

Mobile Computing Through Telephony: Evaluation of telephony – Multiple access procedures – Satellite Communication Systems-Mobile computing through telephone – Developing an IVR Application – Voice XML – Telephony application Programming Interface.
Emerging Technologies: Introduction- Bluetooth – Radio Frequency Identification– Wireless Broadband– Mobile IP – Internet Protocol Version6 – Java Card.

UNIT –IV

GPRS – GPRS and packet data network – GPRS network architecture – GPRS network operations – Data services in GPRS – Application for GPRS.
SMS: Mobile Computing Over SMS-Short Message Service-Value Added Services through SMS.

UNIT -V

GSM: Global System for mobile communications – GSM Architecture – GSM Entities – Call routing in GSM – PLMN Interfaces – GSM Addresses and Identifiers – Network Aspects in GSM – Mobility Management-GSM Frequency allocations – Authentications and Security.

TEXT BOOK
MOBILE COMPUTING, Asoke K Talukder , Roopa R Yavagal, TMH, 2005

SEMESTER – VI

Practical 6: SCRIPTING TOOLS PROGRAMMING LAB

1. Write a PHP program to validate the Textbox

2. Write a PHP program to draw different shapes

3. Write a PHP program to perform the string manipulation

4. Write a PHP program to   perform uploading

5. Write a PHP program to perform user registration using HTML tags

6. Write a PHP program to display date and time using AJAX

7. Write a PHP program to check user login

8. Write a PHP program to create a college website

9. Write a PHP program for cookies and session scripts

10. Write a PHP program to perform file read, write, open and append operation

SEMESTER –VI

Skill based subject –IV: SOFTWARE PROJECT MANAGEMENT

UNIT – I
Starting the Project**:** Gathering Project Information – Defining the project Goal Researching the Project**:** How to Research – Establishing the Project Priority.
Working with Management**:** Presenting the Project to Management – Defining Management's Role.

UNIT –II
Creating the Budget**:** Budget Basics – Implementing Bottom –up cost Estimates Budget at Completion –Zero –Based Budgeting –Determining Project Expenses.
Crating a Work Breakdown Structure**:** Defining the Work breakdown Structure – Working with a WBS – Coordinating WBS components –Creating a WBS.

UNIT –III
Organizing a Project Team**:** Assessing Internal skills –Creating a Team – Interviewing Potential Team Members –Managing Team Issues –Using External Resources.
Building the project Plan**:** Project Plan Documents-Creating the Project Scope Management Plan-Defining the Project Schedule Management Plan-Creating the Project Cost Management Plan-Planning for Project Quality-Preparing for Managing a Project Team.

UNIT –IV
Implementing the Project Plan**:** Reviewing Assignments with the project Team –Focus on the work – Hosting a project Team Meeting –Tracking Process – Tracking Financial Obligations.
Enforcing Quality**:** Defining Quality – Quality of the deliverables – Quality of the process – Quality Management as a Process
.
UNIT –V
Managing Teams **:** Leading the team –Establishing the Project Authority – Mechanics of Leading a Team –Team Meetings – Maintaining Team Leadership – Working toward the Finish – Motivating the Team.
Completing the Project**:** Completing the Final Tasks – The Project Postmortem – Obtaining Final Sign-Off – Post-Project Audit – Creating the Final Report.

TEXT BOOK:
1. Joseph Philips, "IT Project Management", TMH, New Delhi, 2002.

REFERENCES
1. Mike Cottrell and Bob Hughes, "Software Project Management – Inclination", TMH, 2001.

SEMESTER – VI

Non-Major Elective Paper-II: INFORMATION TECHNOLOGY- II
(OFFICE AUTOMATION)

UNIT – I
Problem Solving: Problem Definition and Analysis – Algorithms – Flow Charts- Assemply Language-High Level language-Compilation. Problem testing Documentation **Data Processing:** Files and records.

UNIT – II
Windows Basics: Starting Windows – Moving and Resizing the Windows – Using menus in Windows – Opening multiple Windows – Windows Accessories: Formatting paragraphs and text – Finding and Replacing Text, Using Tabs – Using Notepad.

UNIT – III
Microsoft Word: Word Processing Overview – Creating And Editing Documents – Formatting Documents – Creating Tables – Mail Merging.

UNIT – IV
Microsoft Excel: Introduction – Creating a Worksheet – Formatting and Printing a Worksheet – Creating Charts.

UNIT – V
Some Internet Application : E-mail-WWW-Information Browsing Services.
Business Information System: Types of information needed by organization Computer and Business-System life cycle.

TEXT BOOKS
1. PC Software for Windows Made Simple – R.K. Taxali.
2. R.Rajaram, "Basic Computer Science and Communication Engineering",
   Scitech Publications,1998.