

BHARATHIAR UNIVERSITY::COIMBATORE-641 046
B.SC., SOFTWARE SYSTEM & COMPULSORY DIPLOMA IN
MULTIMEDIA & ANIMATION

(For the students admitted from the academic year 2008-2009 and onwards)

SCHEME OF EXAMINATION - CBCS PATTERN

Part	Study Components	Course title	Ins. hrs/ week	Examinations				Credit
				Dur.Hr	CIA	Marks	Total Marks	
	Semester I							
I	Language – I		6	3	25	75	100	3
II	English – I		6	3	25	75	100	3
III	Core 1: Data Structures and C Programming		4	3	25	75	100	4
	Core 2: Digital Fundamentals and Architecture		4	3	25	75	100	5
	Core Lab 1: C Programming Using Data Structures		3	3	40	60	100	3
	Allied 1: Computer Oriented Numerical and Statistical Methods		5	3	25	75	100	5
IV	Environmental Studies #		2	3	-	50	50	2
	Semester II							
I	Language – II		6	3	25	75	100	3
II	English – II		6	3	25	75	100	3
III	Core 3: Object Oriented Programming with C++		6	3	25	75	100	4
	Core Lab 2: Programming Lab in C++		4	3	40	60	100	3
	Allied 2: Computer–Based Optimization Techniques		6	3	25	75	100	5
IV	Value Education – Human Rights #		2	3	-	50	50	2
	Semester III							
	Core 4: Operating System		6	3	25	75	100	5
III	Core 5: JAVA Programming		6	3	25	75	100	4
III	Core Lab 3: Programming Lab - JAVA		5	3	40	60	100	3
III	Allied 3: Business Accounting		6	3	25	75	100	5
IV	Skill based Subject I – Diploma Paper - Multimedia & its Applications		5	3	25	75	100	3
IV	Tamil @ / Advanced Tamil# (OR) Non-major elective - I (Yoga for Human Excellence)# / Women's Rights#		2	3	75	75	75	2

	Semester IV						
III	Core 6: Visual Programming - Visual Basic	6	3	25	75	100	4
	Core 7: Software Engineering	6	3	25	75	100	5
	Core Lab 4: Programming Lab - Visual Basic	6	3	40	60	100	3
	Allied 4: Management Information Systems	6	3	25	75	100	5
IV	Skill based Subject 2 – Diploma paper - Multimedia Lab	4	3	40	60	100	3
IV	Tamil @ /Advanced Tamil # (OR) Non-major elective -II (General Awareness #)	2	3	75		75	2
	Semester V						
III	Core 8: Relational Database Management Systems	6	3	25	75	100	5
III	Core 9: Artificial Intelligence	6	3	25	75	100	4
III	Core 10: Client / Server Computing	6	3	25	75	100	5
	Core Lab 5: RDBMS Lab –ORACLE	4	3	40	60	100	3
	Elective I	5	3	25	75	100	5
IV	Skill based Subject 3 - Diploma Paper - Animation Techniques	3	3	25	75	100	3
	Semester VI						
	Core 11: Software Testing	5	3	25	75	100	4
	Core 12: Computer Networks	6	3	25	75	100	5
	Core Lab 6: Software Testing Lab	6	3	40	60	100	3
	Elective II	5	3	25	75	100	5
	Elective III	5	3	25	75	100	5
IV	Skill Based Subject 4 - Diploma Animation Lab	3	3	40	60	100	3
V	Extension Activities @	-	-	50	-	50	1
	Total					3600	140

@ No University Examinations. Only Continuous Internal Assessment (CIA)

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List of Elective papers (Colleges can choose any one of the paper as electives)		
Elective – I	A	E-Commerce
	B	Wireless Mobile Communications
	C	Distributed Computing
Elective – II	A	Web Technology
	B	Software Quality Assurance
	C	Software Reliability
Elective - III	A	Data Mining
	B	Component Technology
	C	LAN & Trouble Shooting

CORE 1 : DATA STRUCTURES AND C PROGRAMMING

Subject Description: This subject deals with the methods of data structures using C programming language.

Goal: To learn about C programming language using data structural concepts.

Objective: On successful completion of this subject the students should have :

- Writing programming ability on data structures dealing with Stacks, Queues, List, Searching and Sorting algorithms etc.,

UNIT I:

Programming development methodologies – Programming style – Problem solving techniques: Algorithm, Flowchart, Pseudo code - Structure of a C program – C character set – Delimiters – Keywords – Identifiers – Constants – Variables – Rules for defining variables – Data types – Declaring and initializing variables – Type conversion.

Operators and Expressions – Formatted and Unformatted I/O functions – Decision statements – Loop control statements.

UNIT II:

Arrays – String and its standard functions. Pointers – Functions – Preprocessor directives: #define, #include, #ifndef, Predefined macros.

UNIT – III:

Structure and Union: Features of structure, Declaration and initialization of structure, Structure within structure, Array of structure, Pointer to structure, Bit fields, Enumerated data types, Union. Files: Streams and file types, Steps for file operation, File I/O, Structures read and write, other file functions, Command line arguments, I/O redirection.

UNIT – IV:

Linear data structures: Introduction to data structures – List: Implementations, Traversal, Searching and retrieving an element, Predecessor and Successor, Insertion, Deletion, Sorting, Merging lists – Stack: Representation, Terms, Operations on stack, Implementation. Single linked list, Linked list with and without header, Insertion, Deletion, Double linked list – Queues: Various positions of queue, Representation

UNIT V:

Searching and Sorting – Searching: Linear, Binary. Sorting – Insertion, Selection, Bubble, Quick, Tree, Heap.

TEXT BOOK:

Ashok N Kamthane, “PROGRAMMING AND DATA STRUCTURES” – Pearson Education, First Indian Print 2004, ISBN 81-297-0327-0.

REFERENCE BOOK:

1. E Balagurusamy: Programming in ANSI C, Tata McGraw-Hill, 1998.
2. Ellis Horowitz and Sartaj Sahni: Fundamentals of Data Structure, Galgotia Book Source, 1999.
3. Data structure using C – Aaron M Tanenbaum, Yedidyeh langsam, Moshe J Augenstein, PHI Pub

CORE 2 :DIGITAL FUNDAMENTALS AND ARCHITECTURE

Subject Description: This subject deals with fundamentals of digital computers, Microprocessors and Architecture.

Goal: To learn about computer fundamentals and its organization.

Objective: On successful completion of this subject the students should have :

- Knowledge on digital circuits
- Microprocessor architecture
- Interfacing of various components

Unit I :

Number System and Binary Codes: Decimal, Binary, Octal, Hexadecimal – Binary addition, Multiplication, Division – Floating point representation, Complements, BCD, Excess3, Gray Code. Arithmetic Circuits: Half adder, Full adder, Parallel binary adder, BCD adder, Half subtract or, Full subtractor, Parallel binary subtractor - Digital Logic: the Basic Gates – NOR, NAND, XOR Gates.

Unit II:

Combinational Logic Circuits: Boolean algebra –Karnaugh map – Canonical form 1 – Construction and properties – Implicants – Don't care combinations - Product of sum, Sum of products, simplifications.Sequential circuits: Flip-Flops : RS, D, JK, T - Multiplexers – Demultiplexers – Decoder – Encoder - Counters.

Unit III:

MICROPROCESSOR: Architecture – Bus Organization – Functional diagram and pin out diagram of 8085 - Addressing modes of 8085 – Instruction set of 8085 – I/O Schemes – Peripherals and Interfaces.

Unit IV:

Input – Output Organization: Input – output interface – I/O Bus and Interface – I/O Bus Versus Memory Bus – Isolated Versus Memory – Mapped I/O – Example of I/O Interface. Asynchronous data transfer: Strobe Control and Handshaking – Priority Interrupt: Daisy-Chaining Priority, Parallel Priority Interrupt. Direct Memory Access: DMA Controller, DMA Transfer. Input – Output Processor: CPU-IOP Communication.

Unit V:

Memory Organization: Memory Hierarchy – Main Memory- Associative memory: Hardware Organization, Match Logic, Read Operation, Write Operation. Cache Memory: Associative, Direct, Set-associative Mapping – Writing Into Cache Initialization. Virtual Memory: Address Space and Memory Space, Address Mapping Using Pages, Associative Memory Page Table, Page Replacement.

Text Books:

- 1.Digital Electronics Circuits and Systems, V.K. PURI, TATA McGRAW-HILL Pub. Company
- 2.Computer System Architecture, M. MORRIS MANO, Pearson Education Pub, III Edition.

Reference Books:

- 1.Digital principles and applications, Albert paul malvino, Donald P Leach, McGrawHill, 1996.
2. Computer Architecture, Carter, Schaums outline series, TMH.

CORE Lab 1 :C Programming Using Data Structures

- Write a Program to Create Stack Operations.
- Write a Program to Create Queue Operations.
- Write a Program to Create Infix to Postfix Conversion.
- Write a Program to Implement Linear & Binary Search to find a Particular Name in a List of Names.
- Write a Program to Create Polynomial Addition using Single Linked Lists.
- Write a Program Using Double Linked Lists.
- Write a Program for Linked List Representation of Employee Records & maintain it with the following operations.
 - to add a new record , to delete an existing record , print the information about an employee , Findining the number of employees in this stucture.
- Write a Program to arrange a set of numbers in Ascending Order using Heap Sort.
- Write a Program to arrange a set of numbers in Ascending Order Using Quick Sort.
- Write a Program Using Shortest Path.
- Write a Program Using Tree Traversals.

**ALLIED PAPER 1:
COMPUTER ORIENTED NUMERICAL & STATISTICAL METHODS**

Subject Description:

This subject deals with various numerical methods and statistical applications for computer science.

Goal:

To learn about the computer based numerical and statistical methods.

Objective:

On successful completion of this subject the students should have :

- Understanding various concepts of numerical analysis.
- Learning various applications statistical methods for Computer Science.

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 Jordan Elimination method – Gauss Seidal method of iteration – Gauss – Jacobi method

Unit II :

Numerical Differentiation – Newton's Forward Difference formula - Newton's backward difference formula – numerical Integration – Trapezoidal rule - Simpson's One-third rule – Simpson's three - eighths rule.

Unit III:

Interpolation – Newton forward interpolation formula – Newton backward interpolation formula – LaGrange's formula – Numerical solution of ordinary differential equations – Taylor method – Euler method – Range kutta method.

Unit IV:

Measures of central tendency – Mean, Median and mode – Relation between mean, median and mode. Dispersion – Range – Mean deviation & standard deviation.

Unit V:

Correlation – Karl Pearson's Coefficient of Correlation – Rank correlation regression – Regression Equations- Difference between correlation & Regression

Text Book:

1. Numerical Methods – P. Kandasamy , K. Thilagavathi, K. Gunavathi. S. & company Ltd. New Delhi Revised Edition 2005 (UNIT I, II & III)
2. Statistical – R. S. N. Pillai, V. Bagavathi **Sultan Chand and Sons** & Company Ltd. New Delhi. Reprint 2005. (UNIT IV & V)

Reference Book:

1. Computer oriented numerical methods – V. Rajaraman, PHI Pub.
2. Numerical methods – E. Balagurusamy Tata MC Graw Hill.

Fundamental of Mathematical statistics S C Gupta, V. K. Kapoor **Sultan Chand and Sons**

CORE 3 :OBJECT ORIENTED PROGRAMMING WITH C++

Subject Description: This subject deals with the programming concepts of Object Oriented Programming using C++.

Goal: To learn about Object Oriented Programming concepts.

Objective: On successful completion of this subject the students should have :

- Writing programming ability on OOPS concepts like Encapsulation, Data abstraction, Inheritance, Polymorphism and Exception handling etc.,

UNIT I:

Introduction to C++ - Key Concepts of OOP – Advantages – OO Languages – I/O in C++ - C++ Declarations - Control Structures – Decision Making Statements – If...Else – Jump – GOTO – Break – Continue – Switch Case Statements – Loops in C++ - For – While – Do...While loops – Functions in C++, In line Functions – Function Overloading.

UNIT II:

Class and Objects: Declaring objects – Defining member functions – Static member variables and functions – Array of objects – Friend functions – Overloading member functions – Bit fields and Class – Constructor and Destructors – Characteristics – Calling constructor and Destructors – Constructor and Destructor with static member.

UNIT III:

Operator Overloading: Overloading unary, Binary operators – Overloading friend functions – Type conversion - Inheritance: Types of inheritance: Single, Multilevel, Multiple, Hierarchical, Hybrid and Multi path inheritance – Virtual Base classes – Abstract Classes.

UNIT IV:

Pointers: Declaration – Pointer to class, object – THIS pointer – Pointer to derived classes and base classes – Arrays – Characteristics – Arrays of classes – Memory models – New and delete operators – Dynamic objects – Binding, Polymorphisms and Virtual functions.

UNIT V:

Files: File stream classes – File Modes – Sequential read/write operations – Binary and ASCII files – Random access operation – Templates – Exception handling – Strings – Declaring and initializing string objects – String attributes – Miscellaneous functions.

TEXT BOOKS

Ashok N Kamthane: Object Oriented Programming with ANSI and Turbo C++, Pearson Education Publ., 2003.

REFERENCE BOOKS

1. E. Balagurusamy: Object Oriented Programming with C++, TMH Pub., 1998.
2. Maria Litvin and Gary Litvin: C++ for you++, Vikas Publ, 2002.
3. John R Hubbard: Programming with C++, TMH Publ. II Edition, 2002.
4. Bhushan Trivedi , “ Programming with Ansi C++ “, Oxford university Press. 2007

CORE LAB2: PROGRAMMING LAB IN C++

1. Write a C++ Program to create a class to implement the Data Structure STACK. Write a constructor to initialize the TOP of the STACK. Write a member function PUSH() to insert an element and member function POP() to delete an element check for overflow and underflow conditions..
2. Write a C++ Program to create a class ARITHMETIC which consists of a FLOAT and an INTEGER variable. Write a Member function ADD (),SUB(),MUL(),DIV() to perform addition, subtraction, multiplication, division respectively. Write a member function to get and display values.
3. Write a C++ Program to read an integer number and find the sum of all the digits until it reduces to a single digit using constructors, destructors and inline member functions.
4. Write a C++ Program to create a class FLOAT that contains one float data member. Overload all the four Arithmetic operators so that they operate on the object FLOAT.
5. Write a C++ Program to create a class STRING. Write a Member Function to initialize ,get and display strings. Overload the Operator “+” to Concatenate two Strings, “=” to Compare two strings
6. Write a C++ Program to create class, which consists of EMPLOYEE Detail like E_Number, E_Name, Department, Basic, Salary, Grade. Write a member function to get and display them. Derive a class PAY from the above class and write a member function to calculate DA, HRA and PF depending on the grade.
7. Write a C++ Program to create a class SHAPE which consists of two VIRTUAL FUNCTIONS Calculate_Area() and Calculate_Perimeter() to calculate area and perimeter of various figures. Derive three classes SQUARE, RECTANGLE, TRIANGLE from class Shape and Calculate Area and Perimeter of each class separately and display the result.
8. Write a C++ Program to create two classes each class consists of two private variables, a integer and a float variable. Write member functions to get and display them. Write a FRIEND Function common to both classes, which takes the object of above two classes as arguments and the integer and float values of both objects separately and display the result.
9. Write a C++ Program using Function Overloading to read two Matrices of different Data Types such as integers and floating point numbers. Find out the sum of the above two matrices separately and display the sum of these arrays individually.
10. Write a C++ Program to check whether the given string is a palindrome or not using Pointers.
11. Write a C++ Program to create a File and to display the contents of that file with line numbers.
12. Write a C++ Program to merge two files into a single file.

ALLIED PAPER 2: COMPUTER BASED OPTIMIZATION TECHNIQUES

Subject Description: This subject deals with various optimization techniques for linear programming , Transportation and assignment problems , Game theory ,PERT and CPM.

Goal: To learn about the managerial concepts like decision making , optimization etc.

Objective: On successful completion of this subject the students should have :

- Understanding various mathematical applications in industries.
- Decision making for real time environment.

UNIT I:

Linear Programming - Mathematical Model assumption of linear Programming – Graphical method - Principles of Simplex method, Big-M Method ,Duality, Dual simplex method.

UNIT II:

Transportation and assignment problem - Integer Programming Branch and Round Techniques - Assignment and Traveling Salesman Problem.

UNIT III:

Game Theory - Concept of Pure and Mixed Strategies – Solving 2 x 2 matrix with and without saddle point - n x 2 - 2 x m games. Replacement models - Elementary replacement models - present value - rate of return - depreciation - Individual replacement – Group replacement.

UNIT IV : (Derivations not included)

Queuing Theory - definition of waiting line model -Queue discipline - traffic intensity - poisson arrival – Birth death process - Problem from single server: finite and infinite population model – Problems from multi server: finite and infinite population model.

UNIT V:

PERT & CPM - Network representation - backward pass - Forward pass - computation - Pert Network - Probability factor – updating and Crashing.

TEXT BOOKS

- 1.MANMOHAN, P.K. GUPTA, KANTHISWARUP - OPERATIONS RESEARCH -S. CHAND & SONS - 1997.

REFERENCE BOOKS

1. Hamdy A Taha “Operations Research” , Pearson Education, 7th edition,2002
2. Problems in operations research - P K Gupta D S Hira, S. Chand Pub

CORE 4 : OPERATING SYSTEM

Subject Description : This Subject deals with the Operating System.

Goal : : To learn about Operating System

Objective : On Successful Completion of this subject the students should have:

- Concepts , Process , Files , Dead Lock Etc.,

UNIT I:

History of Operating System - Operating system concepts – Process – Files - System calls The Shell - Operating System Structure - Monolithic Systems – Virtual Machines-Client Server model.

UNIT II:

Introduction to Process-Implementation of Process-Process States- Inter Process Communication- Race Condition - Critical Region - Mutual Exclusion - Sleep & Wakeup - Process Scheduling - Shortest job First-Two Level Scheduling

UNIT III:

Files – Structures – Type – Operations - Shared Files - Disk Space Management - The Security Environment - Generic Security Attacks - Design Principles For Security- User Authentication - Deadlocks - Deadlock Detection & Avoidance - Deadlock Prevention

UNIT IV:

Memory Management: Swapping - Virtual Memory - Memory Management without Swapping – Segmentation - Using MS DOS - MS DOS shell – MS DOS File System.

UNIT V:

Unix: Unix Goals- Interface to Unix-Process in Unix- Unix file system- Memory Management System Calls in Unix.

TEXT BOOK:

Andrew S. Tanenbaum - “Modern Operating System “ -Eastern Economy Edition –PHI

REFERENCE BOOK:

D.M.Dhamdhare – “ Operating Systems–A Concept Based Approach” 2nd edition TMH.
Milan Milenkovic-“Operating System “ 2nd edition TMH.

CORE 5 : JAVA PROGRAMMING

Subject Description : This Subject deals with the JAVA Programming.

Goal : To learn about Java.

Objective: On Successful Completion of this subject the students should have :

- Writing Programming ability on Java like Encapsulation , Data Abstraction , Inheritance , Polymorphism and Exception handling , Applet etc.

UNIT I :

Basic Concepts of Object –Oriented Programming: Objects and Classes – Data Abstraction and Encapsulation – Inheritance – Polymorphism – Dynamic Binding – Message Communication – Benefits of Oops – History of Java.

UNIT II :

Features of Java – Differences between C , C++ and Java – Data Types of Java – Variables – Declaration of Variables – Operators in Java – Decision Making and Branching – Decision Making and Looping –Methods.

UNIT III:

Class Defining – Creating Objects – Constructors – Method Overloading – Method Overriding – Final Classes – Abstract Method & Classes. Arrays - Creating any array – Declaration of Array – Creation of Array – Initialization of Arrays – Array Length – 2 Dimensional Arrays – Strings – String Arrays – String Methods – String Buffer Class.

UNIT IV:

Creating Threads – Extending the Thread class – Lifecycle of thread – Exception – Exception Handling – Multiple Catch Statements Throwing our own exceptions – Using Exceptions for Debugging.

UNIT V:

Introduction to Applets : How to Write Applets – Building Applet Code – Applet Life Cycle – Applet Tag – Running the Applet – Concepts of Streams – Stream Classes – Byte Stream class – Character Stream Class – Using Streams.

TEXT BOOK:

E.BALAGURUSAMY – “Programming With JAVA a Primer “ 3rd Edition TMH.

CORE LAB 3: PROGRAMMING LAB – JAVA

- Create an Employee Package to Maintain the Information about the Employee. Use Constructors to Initialize the Employee Number and Use Overloading Method to set the Basic Pay of the Employee. By Using this Package Create a Java Program.
- Program to Implement Polymorphism , Inheritance and Inner Classes.
- Java Program to Handle Different Mouse Events.
- Create an Applet for a Calculator Application.
- Java Program to Maintain the Student Information
- Animate Images at Different Intervals by using Multithreading Concepts.
- Program to sent a text message to another System and Receive the text message from the System.
- Java Program by using JDBC Concepts to Access a Database.
- Java Program to Implement RMI.
- Java Program by using to Implement the Tree Viewer.
- Java Bean Program to view an Image.

ALLIED PAPER 3 : BUSINESS ACCOUNTING

Goal: To enable the students to learn principles and concepts of Accountancy.

Objective: On successful completion of this course, the student should have understood

- Concepts and conventions of Accounting.
- Basic Accounting framework

UNIT – I

Fundamentals of Book Keeping – Accounting Concepts and Conventions – Journal – Ledger – Subsidiary books – Trial balance.

UNIT – II

Final accounts of a sole trader with adjustments – Errors and rectification

UNIT – III

Bill of exchange- Accommodation bills – Average due date – Account current.

UNIT – IV

Accounting for consignments and Joint ventures

UNIT – V

Bank Reconciliation statement – Receipts and Payments and income and expenditure account and Balance sheet – Accounts of professionals.

Note : Distribution of Marks between problems and theory shall be 80% and 20%.

BOOKS FOR REFERENCE

1. N.Vinayakam, P.L.Mani, K.L.Nagarajan – *Principles of Accountancy* – S.Chand & Company Ltd.,
2. T.S.Grewal – *Introduction to Accountancy*- S.Chand & Company Ltd.,
3. R.L.Gupta, V.K.Gupta, M.C.Shukla – *Financial Accounting* – Sultanchand & sons
4. T.S.Grewal, S.C.Gupta, S.P.Jain – *Advanced Accountancy*- Sultanchand & sons
5. K.L.Narang, S.N.Maheswari - *Advanced Accountancy*-Kalyani publishers
6. S.K.Maheswari, T.S.Reddy - *Advanced Accountancy*-Vikas publishers
7. A.Murthy -*Financial Accounting* – Margham Publishers
8. P.C.Tulsian - *Advanced Accountancy* – Tata McGraw Hill Companies.
9. A.Mukherjee, M.Hanif – *Modern Accountancy. Vol.1*- Tata McGraw Hill Companies

DIPLOMA PAPER 1 : MULTIMEDIA & ITS APPLICATIONS

Subject Description : This Subject deals with the Multimedia & its Application

Goal : : To learn about Multimedia

Objective : On Successful Completion of this subject the students should have:

- Media , Sound & Audio , Images , Animation , Video etc.,

UNIT I :

Introduction – Branch Overlapping Aspects of Multimedia Content – Global Structure – Multimedia Literature . Multimedia – Media and Data Streams – Medium .

UNIT II:

Sound/Audio : Basic Sound Concepts – Music –Speech , Images and Graphics : Basic Concepts – Computer Image Processing – Video and Animation : Basic Concepts – Television – Computer Based Animation .

UNIT III:

Data Compression : Storage Space – Coding Requirements – JPEG – MPEG – DVI , Optical Storage Media , Computer Technology – Multimedia Operating System.

UNIT IV:

Networking System : Layers , Protocols and Services , Networks , Metropolitan Area Networks , WAN , Multimedia Communication System.

UNIT V:

User Interfaces, Synchronization , Abstraction for Programming : Abstraction Levels – Libraries – System Software – Toolkit – Higher Programming Languages . Multimedia Application : Introduction – Media Population – Media Composition – Media Communication – Trends.

TEXT BOOK :

Ralf Steinmetz & Klara Nahrstedt – “ Multimedia Computing , Communication & Applications “ Pearson Education.

REFERENCE BOOK:

Fred T,Hofstetter – “ Multimedia Literacy “ – 3rd edition TMH.

CORE 6: VISUAL PROGRAMMING(VB)

Subject Description : This Subject deals with the Visual Programming.

Goal : To learn about Visual Programming.

Objective: On Successful Completion of this subject the students should have :

- Writing Programming ability on Visual Basic .

UNIT I:

Getting Started – Visual Basic Environment – Initial VB Screen – Single Document Interface – Tool Bars and System Control & Components – Use of File, Edit , View , Project , Format , Run and Debug , Tools , Window Menu , Properties Window , Procedures , Image Controls , Text Boxes , Labels , Navigating between Controls , Message Controls , Message Boxes and Grids.

UNIT II:

Steps in Programming – The Code Window – Editing Tools – Statements in VB – Assignment – and Property Setting – Variables , Numbers , Constants , Displaying Information – Controlling Program Flow – Repeating Operation – Making Decisions – GOTO – String Function – RND Functions – Data and Time Functions – Financial Functions.

UNIT III:

Control Arrays – Lists : One Dimensional Arrays – Array with More than One Dimension – Using Lists Functions and Procedures – Passing by Reference / Passing by Values – Code Module – Global Procedure and Global Variables – Documents for User Defined Types with Statements – Common Dialog Box – MDI Forms.

UNIT IV:

Fundamentals of Graphics and Files – Screen – The Line and Shapes – Graphics Via Codes , Lines & Boxes , Circle , Ellipse , Pie Charts Curves , Paint Picture Method – Graph Control – File Commands – File System Controls – Sequential Files – Random Access Files – Binary Files.

UNIT V:

Clip Board , DDE , OLE , Data Control – Programming with Data Control – Monitoring Changes to the Databases – SQL – Basics Database Objects.

TEXT BOOK :

Gary Comell – “Visual Basic 6.0 Programming”– Tata McGraw Hill Edition.

CORE 7: SOFTWARE ENGINEERING

Subject Description : This Subject deals with the Soft Ware Engineering

Goal : : To learn about Software Engineering

Objective : On Successful Completion of this subject the students should have:

- Design Process , Analysis Concepts , User Interface Design.

UNIT I :

The Evolving role of software – Software – Software Crises & Myths – Software Engineering : Layered Technology – The Software Process Model – Evaluating Software Process Models – Components Based Development – The Formal Methods Model – 4GT – Software Scope – Resources – Software Project Estimation – Decomposition Techniques – Empirical Estimation Models.

UNIT II :

Analysis Concepts & Principles : Requirement Analysis – Analysis Principles – Software Prototyping – Specification . Analysis Modeling : Data Modeling – Functional Modeling & Information Flow – Behavioral Modeling .

UNIT III:

Design Concepts & Principles : The Design Process – Design Principles – Design Concepts – Effective Modular Design.

UNIT IV:

User Interface Design : The Golden Rules – UID – Task analyzing and modeling – Interface Design Activities – Implementation Tools – Design Evaluation .

UNIT V:

Component Level Design : Structured Programming – Comparison of Design Notations . Object Oriented design : Design for Object Oriented Systems – the System design process – The Object Design Process.

TEXT BOOK :

Roger S Pressman – “Software Engineering a Practioner’s Approach “ 5th Edition, TMH.

REFERENCE BOOK:

Waman S.Jawadekar – “Software Engineering – Principles & Practice” – TMH.

CORE LAB 4 : PROGRAMMING LAB - VB

- Develop a VB Project to Check User Name & Password Given by User.
- Develop a VB Project to Add & Remove Items From List Box.
- Develop a VB Project to Copy all Items in a List Box to Combo Box.
- Develop a VB Project to Enter and Display Student Information.
- Develop a VB Project to Scroll Text from Left to Right Using Timer.
- Develop a VB Project to Mini Calculator Functions.
- Develop a VB Project to Documents typing using MDI Form.

Use Employee Information For the Following Projects.

- Develop a VB Project to Search a Record in MS-ACCESS database using data control.
- Develop a VB Project to Delete a Record From MS-ACCESS database using data control.
- Develop a VB Project to Perform following Operations in MS-ACCESS database using DAO . A). Move First Record B).Move Next Record C).Move Previous Record. D).Move Last Record.
- Develop a VB Project to Insert a Record in MS-ACCESS database using ADO.
- Develop a VB Project to Modify a record in MS-ACCESS database using ADO.

ALLIED PAPER 4 : MANAGEMENT INFORMATION SYSTEM

Subject Description : This Subject deals with the MIS

Goal : : To learn about MIS

Objective : On Successful Completion of this subject the students should have:

- Management Role, Control, Process , DSS , BPR, Etc.,

UNIT I:

Introduction : MIS Concept – MIS Definition – Role of the MIS – Impact of the MIS – MIS and Computer. Role and Importance of Management – Introduction Approaches to Management – Functions of the Manager – Management as a Control System – Process of Management.

UNIT II:

Organization Structure and Theory – Strategic Management of Business : Basics of Management Information Systems : Decision Making – Information Systems.

UNIT III:

System Analysis and Design – Development of MIS – Choice of Information Technology – Applications of Management Information System – Decision Support Systems.

UNIT IV:

Enterprise Management Systems – Technology of Information Systems – Database Management Systems – Object Oriented Technology (OOT) : Conceptual Presentation – Client Server Architecture.

UNIT V:

Networks – Business Process Re-Engineering (BPR) – Data Ware House : Architecture to Implementation – Electronic Business Technology.

TEXT BOOK:

W.S.Jawadkar – “ Management Information Systems “ 2nd edition , Tata McGraw Hill.

REFERENCE BOOK:

Robert .Schultheis , Mary Sumner – “ Management Information System” - 4th edition
TMH.

DIPLOMA PAPER 2 : MULTIMEDIA LAB

(USING PHOTOSHOP/FLASH/MACRO MEDIA)

- How to Create Sun Flower?
- How to Create Water Drops?
- How to Animate Plane Flying the Clouds?
- How to Create Plastic Surgery For Nose?
- How to Create Mouse?
- How to Create See thru text?
- How to Create Military Clothe?
- How to Create Stone Texture?
- How to Create Rollover Buttons?
- How to Create Realistic Stone Structure?
- How to Create Web Page?
- How to Convert Black and White to Color Photo?
- How to Create IceText?
- How to Create Realistic Blood Structure?
- How to Create Fog Effects.

CORE 8: RELATIONAL DATABASE MANAGEMENT SYSTEMS

Subject Description : This Subject deals with the RDBMS

Goal : : To learn about RDBMS

Objective : On Successful Completion of this subject the students should have:

- Data Models, Structure, Transaction, Storage , SQL etc.,

UNIT I :

Introduction : Purpose of Database Systems – View of Data – Data Models – Database Languages – Transaction Management – Storage Management – Database Administrator – Database Users – System Structure . Entity – Relationship Model : Basic Concepts – Keys – Entity – Relationship Diagram – Weak Entity Sets – ER Features . Specialization , Generalization . Relational Model – Structure of Relational Databases – Relational Algebra – Views.

UNIT II:

SQL :Background–Basic Structure–Set Operations–Aggregate Functions– Null Values – Nested Sub queries – Derived Relations– Views–Modification of the Database–Joined Relations–Data Definition Language–Embedded SQL–other SQL Features .

UNIT III:

Integrity Constraints : Domain Constraints – Referential Integrity – Assertions – Triggers – Functional Dependencies. Relational DataBase Design – Pitfalls – Normalization Object Oriented DataBases : New DataBase Applications – Object Oriented Data Model – Object Oriented Languages – Persistent Programming Languages.

UNIT IV:

Object Relational DataBases : Nested Relations – Complex Types & Object Orientation – Querying with Complex Data Types – Creation of Complex Values & Objects – Comparison of Object – Oriented & Object – Relational DataBases.

UNIT V:

New Application : Decision – Support Systems – Data Analysis – Data Mining – Data Warehousing – Spatial and Geographic DataBases – Multimedia DataBases – Mobility and Personal DataBases – Information Retrieval Systems – Distributed Information Systems – The WWW.

TEXT BOOK :

Abraham Silberchatz, Henry F.Korth, S.Sudharshan–“DataBase System Concepts” TMH – 1997.

CORE 9: ARTIFICIAL INTELLIGENCE

Subject Description : This Subject deals with the Artificial Intelligence

Goal : : To learn about AI

Objective : On Successful Completion of this subject the students should have:

- Heuristic , Hill Climbing , Planning , Expert System etc.,

UNIT I :

The AI Problems – AI technique – Criteria for success – Define the Problem as a state space search – Production System – Characteristics – Problem Characteristics.

UNIT II :

Heuristic Search Techniques: Generate and Test – Hill climbing –Best First Search – Problem Reduction – Constraints Satisfaction – Means End Analysis.

UNIT III:

Knowledge Representation Issues : Approaches to knowledge Representation – The Frame Problem – Computable Functions & Predicates – Resolution – Procedural versus Declarative Knowledge .

UNIT IV:

Logic Programming – Backward Versus Forward Reasoning – Matching – Control Knowledge . Planning : Overview – Components of Planning System – Goal Planning – Hierarchical Planning – Reactive Systems.

UNIT V:

Expert Systems: Representing & Using Domain Knowledge – Expert System Shells - Explanation – Knowledge Requisition .

TEXT BOOK :

Elaine Rich and Kevin Knight – “Artificial Intelligence “ Tata Mcgraw Hill 2nd edition 1991.

CORE 10: CLIENT / SERVER COMPUTING

Subject Description : This Subject deals with the C/S Computing

Goal : To learn about C/S Computing

Objective : On Successful Completion of this subject the students should have:

- C/S Applications , GUI ETC.,

UNIT I :

Introduction to Client/Server Computing – What is Client/Server Computing – Benefits of Client/Server Computing – Evolution of C/S Computing – Hardware Trends – Software Trends-Evolution of Operating Systems – N/w Trends – Business Considerations..

UNIT II :

Overview of C/S Applications: Components of C/S Applications – Classes of C/S Applications – Categories of C/S Applications . Understanding C/S Computing : Dispelling the Myths – Obstacles – Upfront & Hidden – Open Systems & Standards – Standards – Setting Organizations – Factors of Success .

UNIT III:

The Client Hardware & Software : Client Component – Client Operating Systems – What is GUI – Database Access – Client Software Products : GUI Environments – Converting 3270/5250 Screens – Database Tools – Client Requirements : GUI Design Standards – Open GUI Standards – Interface Independence – Testing Interfaces .

UNIT IV:

The Server : Categories of Servers – Features of Server Machines – Classes of Server Machines – Server Environment : N/W Management Environment – N/W Computing Environment – Extensions – Network Operating System – Loadable Module..

UNIT V:

Server Operating System : OS/2 2.0 – Windows New Technology – Unix Based OS – Server Requirements : Platform Independence – Transaction Processing – Connectivity – Intelligent Database – Stored Procedure – Triggers – Load Leveling – Optimizer – Testing and Diagnostic Tools – Backup & Recovery Mechanisms..

TEXT BOOK:

Dawna Travis Dewire –“Client / Server Computing “ – Tata McGraw Hill.

Core Lab 5 : RDBMS LAB - ORACLE

Study Features of Commercial RDBMS Packages such as ORACLE and Developers 2000. Laboratory Exercise should include defining scheme of applications , Creation of a DataBase , Writing SQL Queries to retrieve information from database . Use of host language interface with embedded SQL . Use of forms and report writer package . Some Sample Applications , which may be programmed are given below.

- Banking System Various Schemed
- On-Line Reservation System
- Personal Information
- Student Mark Processing System
- Hotel Management
- Stock Maintenance
- College Admission System

DIPLOMA PAPER 3: ANIMATION TECHNIQUES

Subject Description : This Subject deals with the Animation Techniques.

Goal : To learn about Animation.

Objective: On Successful Completion of this subject the students should have :

- 2D & 3D Animation , Script Animation , Motion Caption , Audio & Video Format etc.

UNIT I:

What is mean by Animation – Why we need Animation – Types of Animation 2D & 3D – Theory of 2D Animation – Theory of 3D Animation – Difference between Graphics & Animation – Application of 2D & 3D Animation – History of Animation – Software's.

UNIT II:

Traditional 2D Animation Concept – Types of 2D Animation – Techniques of 2D Animation – Color – Text – Formation – Size – Script Animation – Time Line Effects – Application of 2D Animation – Characterization 2D – Principle of 2D Animation – Concept Development.

UNIT III:

3D Animation & its Concepts – Types of 3D Animation – Cycle & Non-Cycle Animation – Theory of Character 3D Animation – 3D Transition Animation – Skeleton & Kinetic 3D Animation – Texturing & Lighting of 3D Animation – 3D Camera Tracking – Applications & Software of 3D Animation.

UNIT IV:

Motion Caption – Formats – Methods – Usages – Motion Capture Software – Merge with Software – Expression – Formats – Methods – Usages – Expression Capture Softwares – Script Animation Usage – Different Language of Script Animation Among the Software.

UNIT V:

Concept Development – Scripting – Story Developing – Output Formats – Audio Formats & Video Formats – Colors – Color Cycle – Color Formats – 3D Production Budgets – 3D Animated Movies – Fields in 3D Animation.

TEXT BOOK:

Joestadaro , Donkim – “ Maya 6.0 Bible “.
Kelly Ldot Murtock – “ 3DS Max Bible “.

Reference Book :

Tom Meade , Shinsaku Arima - “ Maya 8.0 The Complete Reference “ – Tata McGrawhill.

CORE 11 : SOFTWARE TESTING

Subject Description: This subject deals software testing concepts like unit-wise testing, integration testing and acceptance testing.

Goal: Knowledge on software testing and how to test the software at various levels.

Objective: To inculcate knowledge on Software testing concepts.

UNIT-I:

Software Development Life Cycle models: Phases of Software project – Quality, Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. **White-Box Testing:** Static Testing – Structural Testing –Challenges in White-Box Testing.

UNIT-II:

Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - **Integration Testing:** Integration Testing as Type of Testing – Integration Testing as a Phase of Testing – Scenario Testing – Defect Bash.

UNIT-III:

System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing - Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.

UNIT-IV:

Performance Testing: Factors governing Performance Testing – Methodology of Performance Testing – tools for Performance Testing – Process for Performance Testing – Challenges. **Regression Testing:** What is Regression Testing? – Types of Regression Testing – When to do Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.

UNIT-V:

Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting –Best Practices. **Test Metrics and Measurements:** Project Metrics – Progress Metrics – Productivity Metrics – Release Metrics.

TEXT BOOKS:

SOFTWARE TESTING Principles and Practices – Srinivasan Desikan & Gopalswamy Ramesh, 2006, Pearson Education.

REFERENCE BOOKS:

Renu Rajani , Pradeep Oak –“ Software Testing - Effective Methods , Tools & Techniques “ – Tata McGraw Hill

CORE 12 : COMPUTER NETWORKS

Subject Description : This Subject deals with the Computer Networks

Goal : To learn about Computer Network

Objective : On Successful Completion of this subject the students should have:

- Mobile Communication, Wireless Transmission etc.,

UNIT I :

Introduction : Use of Computer Networks – Network Hardware – Network Software – Reference Models – Example of Networks.

UNIT II:

The Physical Layer : The Theoretical basis for data communication – Guided transmission Media Wireless Transmission – Communication Satellites – The Public Switched Telephone Network – Cable Television – Mobile Telephone System.

UNIT III:

Data Link Layer : Data Link Layer Design Issues – Error Detection and Correction – Elementary Data Link Protocols – Sliding Window Protocols – Protocol Verification – Example Data Link Protocols.

UNIT IV:

Network Layer:Network Layer Design Issues – Routing Algorithms – Congestion Control Algorithms – Quality of Service – Internet Working – Network Layer in the Internet.Transport Layer : Transport Service – Elements of Transport Protocol – A Simple Transport Protocol – The Internet Transport Protocols : UDP – TCP-Performance issues.

UNIT V:

Session Layer : Design Issues , Synchronization – Presentation Layer : Design Issues , Cryptography – Applications Layer : Design Issues , File Transfer , E-Mail.

TEXT BOOK:

Andrew S.Tanenbaum - “ Computer Networks “ 4th Edition PHI/Pearson Education.

REFERENCE BOOK :

P.Green – “ Computer Network Architecture and Protocols “ , Plenum Press 1982.

Godbols – “ Data Communication & Networking “ , TMH.

CORE LAB 6 : SOFTWARE TESTING LAB

Write at least 10 TEST CASES for the following programs. Test cases can be for Input data, Conditional expressions, control transfer, output, etc. Run-Test-Debug- until all the test cases are in success status. Marks distribution as follows:

1. List of Test Descriptions (at least 10) for the Program. (20%)

2. Test Cases (40%)
3. Program with all test case results success (30%)
4. Record (10%)

TEST CASE Example:

Test-Id	Test Description	Test Steps	Expected Output	Actual Output	Status
TC-01	Acceptance of 10 digit input data	Input 10 Digit Number	Accepting 10 digit number	Accepted 10 digit number	Success
TC-02	Non- acceptance of character data	Input a character data 'X'	Character X should not be accepted	Accepting Character data	Failure

Modify PIC X(10) into PIC 9(10) and then run program for Test-id TC-02 again

TC-02	Non- acceptance of character data	Input a character data 'X'	Character X should not be accepted	Character data not accepted	Success
TC-03	Digit sum of 10 digit is in single digit	Output data	Single digit sum	Single digit Sum	Success

PRACTICAL LIST

1. Test the COBOL program: Finding the sum of individual digits of a 10-digit number until a single digit is produced.
2. Test the COBOL program: Accept the inputs student Name, Marks for five subjects and declare the result as PASS if the student gets minimum 40 in each subject otherwise declare the result as FAIL.
3. Test the COBOL program: Accept the date in DDMMYY format and display the result in the format 3rd APR 1998.
4. Test the C program: Sort and store the elements two arrays of integers into the third list.
5. Test the C program: Experiment the operations of STACK using array implementation.
6. Test the C program: Menu-driven option for QUEUE operations to perform the following:
 1. Insertion
 2. Deletion
 3. Modification
 4. List
7. Test the C++ Program: Palindrome string checking program. (using Pointers)

DIPLOMA PAPER 4: ANIMATION LAB

USING PHOTOSHOP/FLASH/MACRO MEDIA

- How to Create Shapes and Drawings in Flash?
- How to Change a Shape to Another Shape? (Shape Animation)
- Create a Man to Walk with the help of Key Frame Animation.
- Draw a Bird with Flash tools and make it fly with key Frame Animation.
- Change the Colors of a Object with the Help of Animation.
- Animate a Ball with the help of Guide line Animation.(Path Animation)
- Create a Shining Stores with the help of Movie Clip.
- Create Buttons & Link with other Frames.
- Create a Album with the help of Buttons.
- Create a 3D Rotation of a Box with the Help of Shape Animation.
- How to Create Morphing between two images in FLASH.
- Create a Simple game with the help of Action Script.
- Make a new Mouse Pointer with the help of action script.
- How Import Pictures from Photoshop & Interlinked them.
- How we are give Password with the help of action script to a website?

ELECTIVE I - A : E-COMMERCE

Subject Description : This Subject deals with the E-Commerce

Goal : To learn about E-Commerce

Objective : On Successful Completion of this subject the students should have:

- E-Commerce , E-Market , EDI , Business Strategies etc.,

UNIT I:

Introduction to E-Commerce : The Scope of E-Commerce – Definition-E-Commerce & the Trade Cycle – Electronic Market – Electronic Data Interchange – The Internet Commerce – The E-Commerce in Perspective. Business Strategy : The Value Chain – Supply Chains – Porter’s Value Chain Model – The Inter Organizational Value Chain.

UNIT II:

The Introduction to Business Strategy – Strategic Implications of IT – Technology – Business Environment – Business Capability – Existing Business Strategy – Strategy Formulation & Implementation Planning – e-Commerce Implementation - Commerce Evaluation. The Inter Organizational Transactions – The Credit Transaction Trade Cycle. A Variety of Transactions – Pens & Things.

UNIT III:

E-Markets : Markets – E-Markets-Usage of E-Markets-Advantages & Disadvantages of E-Markets . EDI : Introduction – Definition - Benefits of EDI – EDI Standards – EDI Communication EDI Implementation – EDI Agreement – EDI Security.

UNIT IV:

The Internet : The Internet – The Development of the Internet – TCP/IP – Internet Components – Uses of the Internet – A Page on the Web : HTML Basics – Introduction to HTML – Further HTML – Client Side Scripting – Server Side Scripting – HTML Editors & Editing – The Elements of E-Commerce : Elements – e-Visibility – The e-Shop – On line Payments - Delivering the Goods – Internet e-Commerce Security .

UNIT V:

E-Business : Introduction - The Internet Bookshops – Grocery Supplies - Software Supplies and Support – Electronic Newspapers – The Internet Banking - The Virtual Auctions – Online Share Dealing – Gambling on the Net – e-Diversity.

TEXT BOOK :

David Whiteley–“E-Commerce – Strategy, Technology & Applications “ Tata McGraw-Hill.

REFERENCE BOOK:

Jeffrey F.Rayport,Bernard J.Jaworski –“ Introduction to E-Commerce” – 2ND EDITION TMH.

ELECTIVE I - B : WIRELESS MOBILE COMMUNICATIONS

Subject Description - This Course presents the Wireless Mobile Communications.

Goals - To enable the students to learn the fundamentals of Wireless Transmission.

Objective

On successful completion of the course the students should have:

- Understood the wireless communication principles, wireless networking and wireless standards.

Contents

UNIT I

Introduction to Wireless Communication Systems: Evolution of Mobile Radio Communication - Applications - Comparison of common wireless Communication Systems -Trends in Cellular Radio and Personal Communications - Modern wireless Communication Systems.

UNIT II

Wireless Transmission: Frequencies for Radio transmission- Signals- Antennas - Signal Propagation – Multiplexing- Modulation- Spread Spectrum – **Medium access control:** Specialized MAC – SDMA- FDMA- TDMA - CDMA - FHMA - Radio Packet.

Tele Communication Systems : GSM - DECT - TETRA – UTMS-PACS - Personal Handy Phone System (PHS) - Pacific Digital Cellular (PDC) and IMT 2000.

UNIT III

The **Cellular Concept** - System Design fundamentals : Introduction - Frequency Reuse - Channel Assignment Strategies - Interference and System capacity - Trunking and Grade of Service - Improving coverage & Capacity in Cellular Systems.

UNIT IV

Wireless Networking: Introduction to wireless Networks - Differences between wireless and fixed telephone Networks - Development of Wireless Networks - Traffic Routing in Wireless Networks - Wireless Networks - Wireless Data Services –CCS- ISDN - Signaling system No: 7(SS7)- PCS / PCNs- Protocols for Network Access - Network Databases.

UNIT V

Wireless Systems and Standards : AMPS and ETACS - CDMA Digital Cellular standard (15 – 95) -Reverse CDMA channel - Scripting languages for Wireless Communication - An overview - components.

REFERENCE BOOKS :

- 1.Odore W.Rapport - Wireless Communications - Principals and Practice , Second Edition , 2002, Pearson Education.
1. Jochen Schillr - Mobile Communication, Addison Wesley, 2000.
2. Stallings – Wireless Communications & Networks, Pearson Education.
3. GARG – Wireless Network Evolution : 2G to 3G, Pearson Education.
4. Richharia – Mobile Satellite Communications : Principles and Trends, Pearson Education
5. Dornan – The Essential Guide to Wireless Communications Applications, Pearson Education

ELECTIVE I - C : DISTRIBUTED COMPUTING

Subject Description

This Course presents the Data Distribution through the Network.

Goals

To enable the students to learn about decentralization of data to acquire reliability and availability of data.

Objective

On successful completion of the course the students should have:

- Understood what is the need of data distribution and how it can be done.

Contents

Unit I

Distributed Systems : Fully Distributed processing Systems, Networks and Interconnection Structures, Designing a Distributed System.

Unit II

Distributed Systems : Pros and Cons of Distributed processing, Distributed Databases, the challenge of Distributed Data, Loading Factors, Managing The Distributed Resources, Division of responsibilities.

Unit III

Design Considerations : Communications Line Loading, Line Loading Calculations, Partitioning and Allocation, Data Flow Systems, Dimension Analysis, Network Database Design Considerations, Ratio Analysis, Database Design Decision Trees, Synchronization of Network Databases.

Unit IV

Client-Server Network Model : Concept – File Server – Printer Server – An e-mail server.

Unit V

Distributed Databases : An Overview - Distributed Databases – Principles of distributed databases – levels of transparency – Distributed Database Design – The R* Project Technique Problems of Heterogeneous Distributed Databases.

RERERENCE BOOKS:

1. John A. Sharp,"An Introduction to Distributed & Parallel Processing",Blackwell Scientific Publications,1987.(Unit I)
2. Uyles D.Black,"Data Communications & Distributed Networks".(Unit II & III)
3. Joel M.Crichlow,""An Introduction to Distributed & Parallel Computing".(Unit IV)
4. Stefans Ceri,Ginseppe Pelagatti,"Distributed Databases Principles and Systems",McGraw Hill Book Co.,New York,1985.(Unit V)

ELECTIVE II – A : WEB TECHNOLOGY

Subject Description : This Subject deals with the Web Technology.

Goal : To learn about web technologies

Objective: On Successful Completion of this subject the students should have :

- TCP/IP to Internet application architectures , EDI etc.,

UNIT I :

Internetworking Concepts , Devices , Basics , History and Architecture – TCP/IP – The Concept of IP Address – Address Resolution Protocol (ARP) – Reverse Address Resolution Protocol (RARP) – Internet Control Message Protocol (ICMP).

UNIT II :

Domain Name System (DNS) – Electronic Mail (EMAIL) – File Transfer Protocol (FTP) – Trivial File Transfer Protocol (TFTP) – A Brief History of WWW – Hypertext Markup Language (HTML) – TELNET Remote Login – Web Browser – An Introduction to Electronic Commerce.

UNIT III:

Introduction to Web Technology – Dynamic Web Pages – Active Web Pages – User Sessions in E-Commerce Applications.

UNIT IV:

Electronic Commerce Transaction Management – Electronic Commerce Security Issues – Online Security and Payment Processing Mechanisms .

UNIT V:

Electronic Data Interchange (EDI) – Extensible Markup Language (XML) – Wireless Application Protocol – Appendix : Online Shipping With ASP – Appendix: An Overview of Emerging Technologies.

TEXT BOOK :

Achyut S Godbole , Atul Kahate – “ Web Technologies TCP/IP to Internet Application Architecture .” – Tata McGrawhill .

ELECTIVE II – B : SOFTWARE QUALITY ASSURANCE

Subject Description

This Course presents the essentials of Software Quality, Plan for SQA, Standards, Tools for SQA.

Goals:

To enable the students to learn the Concepts and Principles of SQA.

Objectives :

On successful completion of the course the students should have:

- Understood the principles of SQA
- Must be able to judge the quality of Softwares.

Content

UNIT I

Introduction to software quality – Software modeling – Scope of the software quality program – Establishing quality goals – Purpose, quality of goals – SQA planning software – Productivity and documentation.

UNIT II

Software quality assurance plan – Purpose and Scope, Software quality assurance management - Organization – Quality tasks – Responsibilities – Documentation.

UNIT III

Standards, Practices, Conventions and Metrics, Reviews and Audits – Management, Technical review – Software inspection process – Walk through process – Audit process – Test processes – ISO, cmm compatibility – Problem reporting and corrective action.

UNIT IV

Tools, Techniques and methodologies, Code control, Media control, Supplier control, Records collection, Maintenance and retention, Training and risk management.

UNIT V

ISO 9000 model, cmm model, Comparisons, ISO 9000 weaknesses, cmm weaknesses, SPICE – Software process improvement and capability determination.

REFERENCES

1. Mordechai Ben – Meachem and Garry S.Marliss, “Software Quality – Producing Practical, Consistent Software”, International Thompson Computer Press, 1997
2. Watt. S. Humphrey, “Managing Software Process”, Addison – Wesley, 1998.
3. Philip.B.Crosby, “Quality is Free : The Art of making quality certain”, Mass Market, 1992.

ELECTIVE II - C : SOFTWARE RELIABILITY

Subject Description

This course provides the insight in to the reliability factors of the Software.

Goal :To enable the students to learn about the principle and concepts of Software reliability.

Objectives :

On successful completion of the course the students must have

- understood the concepts of Software reliability
- analysed the quality standards

Content

UNIT I

Software Reliability Definitions - software disasters - Errors - faults - failures - different views of software reliability – software requirements specification - Causes of unreliability in software - Dependable systems: reliable, safe, secure, maintainable, and available - Software maintenance.

UNIT II

The phases of a Software Project - Monitoring the development process – The software life cycle models - software engineering - Structured Analysis and structured Design - Fault tolerance - Inspection - Software cost and schedule.

UNIT III

Software quality modeling - Diverse approaches and sources of information - Fault avoidance, removal and tolerance - Process maturity levels (CMM) - Software quality assurance (SQA) - Monitoring the quality of software - Total quality management (TQA) - Measuring Software Reliability - The statistical approach - Software reliability metrics.

UNIT IV

Data Trends - Complete prediction Systems - overview of some software reliability models - The recalibration of the models - Analysis of model accuracy - Reliability growth models and trend analysis - Software Costs Models - Super models.

UNIT V

Testing and maintaining more reliable software –logical testing – functional testing – algorithm testing – regression testing - fault tree analysis – failure mode effects and critical analysis – reusability - case studies.

REFERENCES

1. J.D. Musa, A. Iannino and K.Okumoto, Software Reliability, Measurement, Prediction, Application, McGraw Hill, 1990.
2. J.D. Musa, Software Reliability Engineering, McGraw Hill, 1998.
3. Michael R. Lyer, Handbook of Software Reliability Engineering, McGraw Hill, 1995.
Xie, M., Software Reliability Modelling, World Scientific, London, 1991.

ELECTIVE III – A : DATA MINING

Subject Description : This Subject deals with the Data Mining

Goal : To learn about Data Mining

Objective : On Successful Completion of this subject the students should have:

- Matrices , Decision tree , Neural Network , Algorithms etc.,

UNIT I:

Basic Data Mining Tasks – Data Mining Versus Knowledge Discovery in Data Bases – Data Mining Issues – Data Mining Matrices – Social Implications of Data Mining – Data Mining from Data Base Perspective.

UNIT II :

Data Mining Techniques – a Statistical Perspective on data mining – Similarity Measures – Decision Trees – Neural Networks – Genetic Algorithms.

UNIT III :

Classification : Introduction – Statistical – Based Algorithms – Distance Based Algorithms – Decision Tree – Based Algorithms – Neural Network Based Algorithms – Rule Based Algorithms – Combining Techniques.

UNIT IV:

Clustering : Introduction – Similarity and Distance Measures – Outliers – Hierarchical Algorithms . Partitional Algorithms.

UNIT V:

Association Rules : Introduction - Large Item Sets – Basic Algorithms – Parallel & Distributed Algorithms – Comparing Approaches – Incremental Rules – Advanced Association Rules Techniques – Measuring the Quality of Rules.

TEXT BOOK :

Margaret H.Dunbam – “ Data Mining Introductory and Advanced Topics “ Pearson Education – 2003.

REFERENCE BOOK :

Jiawei Han & Micheline Kamber – “ Data Mining Concepts & Techniques “ 2001 Academic Press.

ELECTIVE III – B : COMPONENT TECHNOLOGY

SUBJECT DESCRIPTION : This course presents the middle ware technologies that are available and explaining how this can be used for real time applications.

GOALS : To enable the students to learn the basic functions and concepts of COM, DCOM and CORBA.

OBJECTIVES :

On successful completion of the course the students should have
Understood the facilities available in component technology
Learnt how this can be used for real time application.

UNIT I

Information system - Analyzing the Scenario challenges - CORBA overview -
Concepts - Overview of CORBA IDL - IDL Tutorial Conversion of OO design to IDL -
IDL Guidelines - Overview of CORBA and Standard Object model - Architecture -
Clients &
Object Implementation interface and implementation.

UNIT II

Language mapping - Portability and inter operability - OLE integration - CCRBA
services - Information Management Services - Task Management- System Management -
Infrastructure of Services.

UNIT III

Facilities and domains - horizontal - Vertical facilities - Leveraging the OMG Process -
Relationship with other technologies.

UNIT IV

The CORBA migration process - software Architecture - Applications Design using
software
Architect ii

UNIT V

Migration case studies - Problem and Objective standard based Profile - Project context -
Business objects and Process - Interface migration.

REFERENCE BOOK:

I. Inside CORBA — Distributed Object Standards and Applications Thomas J. owtray,
William A. Roh. Addison Wesley 1999.

ELECTIVE III – C : MASTERING LAN AND TROUBLE SHOOTING

Subject Description This Course presents the details of Local Area Networks.

Goals To enable the students to learn about the internal organization of a PC

Objective On successful completion of the course the students should have:

- Understood types of faults and how to solve the problems

Contents

UNIT I PC- Hardware overview

Introduction to computer organization-Memory-PC family-PC hardware-interconnections between Boxes-Inside the boxes:-motherboard, daughter boards, floppy disk drive, HDD, speaker, mode switch, front panel indicators & Control-mother board logic-memory space-I/O port address-wait state-interrupts -I/O data transfer-DMA channels-POST sequence.

UNIT II PERIPHERAL DEVICES

Floppy drive controller-Overview-Disk format-FDC system interface-FDD interface Hard Disk controller-overview-Disk Drives and interface-controller post description Hard disk card-Hard disk format.

Display Adapter:-CRT display- CRT controller principle -CRT controller 6845
Printer controller:-Centronics interface-programming sequence -Hardware overview-printer-sub assemblers.

UNIT III MOTHERBOARD CIRCUITS

Mother board functions-functional units and inter communications:-Reset logic - CPU nucleus logic-DMA logic-Wait state logic-NM logic-speaker logic-keyboard interface-SMPS.

UNIT IV INSTALLATION AND MAINTENANCE

Introduction-pre installation planning -installation practice-routine checks-special configuration memory up gradation - HD up gradation - DOS command(Internal and external).Preventive maintenance-system usage.

UNIT V TROUBLE SHOOTING

Computer faults-nature of faults -types of faults -diagnostic programs and tools-fault elimination-systematic trouble shooting procedure mother board problem-serial port problems-FDC, HDC, display problems- display adapter-printer problem -monitor problems, HDC,FDC problems.

REFERENCE BOOKS:

1. B.Govindaraulu - "IBM PC and Clones", Tata McGraw Hill Co.1995.
2. Robert C Brenner - "IBM PC Trouble shooting and Repair guide", BPB publications.
3. Winn & Rosch - "Hardware Bible" , Tec media.
4. Ray Duncan - "Dos Programming".
5. Zacker – “Upgrading & Trouble shooting Networks – the complete reference”, Tata McGraw Hill edition.
6. Meyers – “Introduction to PC Hardware and Trouble shooting”, Tata McGraw Hill editions.