

**MANONMANIAM SUNDARANAR UNIVERSITY
TIRUNELVELI**

UG COURSES – AFFILIATED COLLEGES
B.Sc. Computer and Information Technology

(Choice Based Credit System)
(With effect from the academic year 2017 -2018)

III Semester			
Category of subjects	Title of the subjects	Contact Hrs/week	Credits
Core	Major – III Management Information System	4	4
	Major – IV Object Oriented Programming with C++	5	4
	Major Practical – III Object Oriented Programming with C++ Lab	6	4
Part III	Skill Based Core Subject – I	6 (2T+4P)	4
Part IV	Non – Major Elective – I	2	2
	Common-Yoga	--	2
	Allied Subject – III Theory – Data Structure	3	3
	Allied Practical – III Data Structure	4	2
Total		30	25

IV Semester			
Category of subjects	Title of the subjects	Contact Hrs/week	Credits
Core	Major – V Java Programming	5	4
	Major Practical – IV Java Programming Lab	6	4
	Major – VI Operating System	4	4
Part III	Skill Based Core Subject-II	6 (2T+4P)	4
Part IV	Non – Major Elective – II	2	2
	Computers for Digital Era	--	2
	Allied Subject – IV Operations Research & Numerical Analysis	3	3
	Allied Practical – IV Linux	4	2
Part V	Extension Activity	--	1
Total		30	26

V Semester			
Category of subjects	Title of the subjects	Contact Hrs/week	Credits
Core	Major – VII Relational Database Management System	5	4
	Major – VIII Software Engineering	4	4
	Major Practical–V Relational Database Management System – Lab	6	4
	Major – IX Data Mining and Data Warehousing	4	4
Part III	Major Elective – I (Group –A)	4	4
Part IV	Skill Based Common Subject Personality Development /Effective Communication /Youth Leader Ship	2	2
	Mini Project	5	4
Total		30	26
VI Semester			
Core	Major – X Data Communications And Networking	4	4
	Major – XI Multimedia Technology	4	4
	Major – XII .Net Programming	5	4
	Major Practical – VI .Net Programming Lab	6	4
Part III	Major Elective – II (Group –B)	4	4
	Major Project	7	7
Total		30	27

Major Elective	
Major Elective – I (Group – A)	E-Commerce
	Artificial Intelligence
	Internet Security
Major Elective – II (Group – B)	Web Programming
	System Programming
	Parallel Computing

SEMESTER – III

MAJOR THEORY – MANAGEMENT INFORMATION SYSTEMS

L T P C

4 0 0 4

Preamble

- To develop and implement management Information Systems in order to deliver cost effective Information and Communication Technology(ICT) solutions that strengthen the efficiency business processes,introduce better controls,greater accountability and improved decision making.
- Outcome : Skills in MIS application will be improved.

Unit – I

Introduction of MIS:

Definition of MIS – Systems approach – meaning and objectives of MIS – MIS and use of computer – limitations of MIS.

(12hrs)

Unit – II

Computer Software for information systems : introduction – system software – Application software – Software Trends.

(12hrs)

Unit – III

Information system in Business : introduction – Functional areas of Business – marketing information system – Human Resource Information System.

(12hrs)

Unit – IV

Application of Information Technology in Business : Introduction of E-Commerce, Mobile Commerce, E-Governance, E-enterprises, From PC to the Web.

(12hrs)

Unit – V

Information Security, Ethics and Society : Challenges of Securing Computer systems – Types of Security Breaches, Cyber Laws and IT Act 2000 – Ethical and Social Dimensions of Information Technology.

(12hrs)

Text Books :

1. Management, Information System A.K. Gupta – S. Chand and Company.
2. Management Information system Dr. S.P. Rajagopalan – Margham Publications

Reference :

1. Management Information System P. Mohan – Himalaya Publishing House.
2. Management Information System, Managerial Perspectives – D.P. Goyal – Macmillan.

MAJOR THEORY – OBJECT ORIENTED PROGRAMMING WITH C++

L T P C

5 0 0 4

Preamble

- C++ Programming by examples can be used as an alternative approach to learn the language, by putting practice over theory.
- In any case this will require you to have greater level of expertise. You will need to understand how C++ files are organized, have and know how to operate a compiler and understand some nuances that will not be visible in code.
- To understand that you will be able to read and program in C++, to some degree but to get to really understand the language, theory, not only practice, is required. Use the primary book as a reference anytime you have a doubt
- Outcome : students will be able to write programme in C++

Unit – I

Introduction to C++ : Evolution of C++ - ANSI Standard – Object Oriented Technology – Disadvantage of Conventional Programming – Programming Paradigms – Preface to Object – Oriented Programming – Key Concepts of Object – Oriented Programming – Advantages of OOP – Object Oriented Languages.

Input and Output in C++ : Streams in C++ - Pre-Defined Streams – Buffering – Stream Classes – Formatted and Unformatted Data – Unformatted Console I/O Operations – Typecasting with cout Statement – Member Functions of Istream Class – Formatted Console I/O Operations.

C++ Declarations : Parts of C++ Program – Types of Tokens – Keywords – Identifiers – Dynamic Initialization – Data Types in C++ - Basic Data Type – Derived Data Type – User – Defined Data Type – The void Data Type – Type Modifiers – Wrapping Around – Typecasting – Constants – Constant Pointers – Operators in C and C++ Precedence of Operators in C++.

(15 hrs)

Unit – II

Control Structures : Decision – Making Statements – The if-else Statements – The jump Statement – The goto Statement – The break Statement – The Continue Statement – The switch case statement – Loops – The for Loop – Nested for Loops – The While Loop – The do-while Loop.

Functions in C++ : The main() Function – Parts of Function – Passing Arguments – L Values and R Values – Return by Reference – Default Arguments – Inline Functions – Function Overloading – Principles of Function Overloading – Library Functions.

(15hrs)

Unit – III

Classes and Objects : Classes in C++ Declaring Objects – The Public Keyword – The Private Keyword – The protected keyword – Defining Member Functions – Data Hiding or Encapsulation – Classes, Objects and Memory – Static Member Variables and Functions – Static Object – Array of Objects – Objects as Functions Arguments – Friend Functions – Recursive Member Function – Local Classes – The main() as a Member Function – Overloading Member Functions – Overloading main() Function.

Constructor and Destructors : Characteristics of Constructors and Destructors – Applications with Constructors – Constructors with Arguments – Overloading Constructors – Constructor with Default Argument – Copy Constructors – The constObject – Destructors – Calling Constructor and Destructors – Qualifier and Nested Classes – Anonymous Objects – Recursive Constructor – Local vs Global Object.

(!5hrs)

Unit – IV

Operator Overloading and Type Conversion : The Keyword Operator – Overloading Unary Operators – Operator Return Type – Constraint on Increment and Decrement Operators – Overloading Binary Operators – Type Conversion – Rules for Overloading Operators.

Inheritance : Access Specifiers and Simple Inheritance – Types of Inheritances – Single Inheritance – Multilevel Inheritance – Multiple Inheritance – Virtual Base Classes.

Pointers and Arrays : Pointer Declaration - Pointer to Class – Pointer to Object – The this Pointer – Base Classes – Arrays – Characteristics of Arrays – Arrays of Classes.

(15hrs)

Unit – V

C++ and Memory : Memory Models – The New and delete Operators – Dynamic Objects.

Binding, Polymorphism and Virtual Functions : Binding in C++ - Virtual Functions – Rules for Virtual Functions – Pure Virtual Functions – Abstract Classes – Working with Virtual Functions.

Applications with Files : File Stream Classes – Steps of File Operations – Finding End of a File – File Opening Modes – File Pointer and Manipulators – Manipulators with Arguments – Sequential Read and Write Operations- Binary and ASCII Files – Random Access Operations.

(15hrs)

Text Book :

1. Ashok N.Kamthane, "Object Oriented Programming with ANSI and Turbo C++", Pearson Education, New Delhi.

Reference :

1. Herbert Schildt, "C++ : The Complete Reference" Tata McGraw Hill Publishing Company Limited, New Delhi.
2. E. Balagurusamy, "Object- Oriented Programming C++", Tata McGraw Hill Publishing Company Limited, New Delhi.
3. D. Ravichandran, "Programming with C++", Tata McGraw Hill Publishing Company Limited, New Delhi.

OBJECT ORIENTED PROGRAMMING WITH C++ - LAB

L T P C

0 0 6 4

PRACTICAL LIST

1. Write a C++ Program to declare all members of a class as public. Access the element using objects.
2. Write a C++ Program to print sum of sin series.
3. Write a C++ Program to calculate simple interest. Hide the data element of the class using private keyword.
4. Write a C++ Program to show difference between static and non-static member variables.
5. Write a C++ Program to declare array of objects. Initialize and display the contents of array.
6. Write a C++ Program to access private data using non-member function. Use friend function.
7. Write a C++ Program to create a class MAT of size of m x n. Define the matrix operations addition, subtraction, input and output by overloading +,-,>> and << operators respectively.
8. Write a C++ Program to create an abstract class 'Queue'. Create two subclasses 'StaticQ' and 'DynamicQ'. Class 'Queue' contains member functions insert, delete, create, isempty, isfull and display functions. DynamicQ overrides insert to change size of queue at runtime if queue is already full.
9. Write a C++ Program to overload member function of class.
10. Write a C++ Program to invoke constructor and destructor.

11. Write a C++ Program that overload + & relational (suitable) operator to perform the following operations.
 - i) Concatenation of two Strings
 - ii) Comparison of two Strings
12. Write a C++ Program to create multilevel inheritance. Create classes A1, A2 and A3.
13. Write a C++ Program to derive a class student from multiple base classes mark and sports. Print the details of the student including percentage.
14. Write a C++ Program to show hierarchical inheritance.
15. Write a C++ Program to declare an object and pointer to the class. Invoke member functions using pointer.
16. Write a C++ Program to create a class employee that contain two functions getdata() & putdata(). Create array of objects for the specified class and read the values using getdata(). Print the values using putdata().
17. Write a C++ Program to print the details vehicle using virtual function. Create a class vehicle and have a virtual function make(). Create another class two wheeler is inherited from vehicle class that invoke the virtual function make(). Print details of two wheeler. Create another class fourwheeler is inherited from the two wheeler that invoke virtual function make(). Print details of fourwheeler.
18. Write a program to read a line of text and replace one word with another word.
19. Write a C++ Program function template for finding the minimum value contained in an array.
20. Write a C++ Program to perform read and write operations with objects using write() and read() functions.

ALLIED THEORY III

DATA STRUCTURES

L T P C
3 0 0 3

PREAMBLE

- To enable the student to understand the concepts of data structure such as arrays, stacks, queues, linked lists, trees and graphs.
- It also explains the different sorting and searching methods.
- Outcome: Skills in linked list, stacks, search, & sorting are obtained.

Unit – I

Introduction and Overview :Definitions – Concept of Data Structures – Overview of Data Structures – Implementation of Data Structures. One – Dimensional Array – Memory allocation of an Array – Operation on Arrays – Application of Arrays – Multidimensional Arrays – Two – dimensional Array – Sparse Matrices – Three Dimensional and n – dimensional arrays – Pointer Arrays.

(9hrs)

Unit – II

Linked Lists : Definition – Single Linked List – Representation of a Linked List in memory – Operations on a Single Linked List – Circular Linked List – Double Linked List – Operations on a Double Linked List – Circular Double Linked List – Operations on Circular Double Linked List – Applications of Linked List – Sparse Matrix Manipulation – Polynomial Representation – Dynamic Storage Management – Memory Representation – Fixed Block Storage – Variable Block Storage.

(9hrs)

Unit – III

Stacks: Definitions – Representation of a Stack – Array Representation of Stacks – Linked List Representation of Stacks – Operations on Stacks – Application of Stacks – Evolution of Arithmetic Expressions – Implementation of Recursion – Factorial Calculation – Quick Sort.

Queue – Definition – Representation of Queues – Representation of Queues using an Array – Representation of a Queue using a Linked List – Various Queue Structures – Circular Queue – Dequeue – Priority Queue.

(9hrs)

Unit – IV

Tables : Hash Tables – Hashing Techniques – Collision Resolution Techniques – Closed Hashing – Open Hashing - Comparison of Collision Resolution Techniques. Representation of Binary Tree – Linear Representation of Binary Tree- Linked Representation of Binary Tree – Physical Implementation of a Binary Tree in Memory – Operation on a Binary of Binary Tree – Physical Implementation of a Binary Tree in Memory – Operation on a Binary Tree – Insertion – Deletion – Traversals – Merging together Two Binary Trees – Types of Binary Trees – Expression Tree – Binary Search Tree – Heap Tree – Thread Binary Tree.

(11hrs)

Unit – V

Sorting :Sorting Techniques – Straight Insertion Sort – Straight Selection Sort – Heap Sort – Bubble Sort – Shell Sort – Quick Sort – Merge Sort. Searching – Linear Search Techniques – Linear Search with Array – Linear Search with Linked List – Linear Search with Ordered List – Binary Search.

(7hrs)

Text Book :

1. “Classic Data Structures” DebasisSamanta, PHI Learning Limited, New Delhi, 2009 Second Edition.

ALLIED PRACTICAL III

L T P C
0 0 4 2

DATA STRUCTURES – LAB LIST

1. Search an element in an array using Binary Search.
2. Stack Implementation using Array.
3. Queue implementation using Array.
4. To manipulate a linked list.
5. Infix to postfix expression.
6. Evaluation of Postfix expression
7. Tree Traversal
8. Merge Sort
9. Selection Sort
10. Quick Sort

SEMESTER – IV
MAJOR THEORY – JAVA PROGRAMMING

L T P C
5 0 0 4

PREAMBLE

- To enable the students to design and develop enterprise strength distributed and multi-tier applications using Java Technology.
- To enable the students to learn advanced Java programming concepts like interface, threads, applets etc, and to develop network programs in Java.
- Outcome: Basic ideas of JAVA programming will be obtained.

Unit – I

The Genesis of Java : Overview of Java – Development of Java – JDE – Data Types – Variables – Arrays – Type Conversion and Casting – Operators – Precedence – Control Statements.

(15hrs)

Unit – II

Introduction Classes: Objects – OOPs Concepts – Declaring Objects – Introducing Methods – Constructors – Overloading – this keyword – Garbage Collection – finalize () method – More Examples.

Objects as parameters – returning objects – recursion – Access Control – Static – Final – Nested and Inner Classes – Command Line Arguments – Sample Programs.

(15hrs)

Unit – III

String and String Buffer Class Inheritance : Types of Inheritance – Method Overriding – Dynamic method Dispatch – Abstract Class – Final with Inheritance – More Examples.

Packages – Access Protection – Importing Packages – Interfaces – Implement and Applying Interfaces – Sample Programs.

(15hrs)

Unit – IV

Exception Handling : Exception Types – Our Own Exception – Handling Exception – Java's Built in Exception – Thread Class and Runnable Interface – Extending Thread – Creating Multiple Threads – isAlive () and join() methods – Synchronization – suspend (), resume () and stop() threads – Example Programs.

I/O packages – Input Stream – Output Stream – File Input and Output Stream – Applet Class – An Applet Skeleton – Simple Applet Display Methods – Example Programs.

(15hrs)

Unit – V

Event Handling : Delegation Event Model – Event Classes – Sources of Events – Event Listener Interface – AWT Controls – Labels – Buttons – Check Boxes – Check Box Group – Lists – Scroll Bar – Text Area – Menu Bars and Menu – Layout Managers – Examples.

(15hrs)

Text Book :

1. Herbert Schildt, “Java 2” Fourth Edition, Tata McGraw – Hill Publishing Company Ltd, New Delhi.

Reference :

1. Peter Norton and William Stanek, “Guide To Java Programming”, Techmedia, New Delhi.
2. Martin Rinehart, “Java Database Development” Ed – 1998, Tata McGraw – Hill Publishing Company Ltd, New Delhi.

MAJOR PRACTICAL
JAVA PROGRAMMING – LAB LIST

L T P C

0 0 6 4

1. Create a Simple program with your own detail.
2. Use Overload i) Method ii) Constructor
3. Create a Program for object as parameters and returning objects.
4. Create a program with abstract class.
5. Create a program using Multilevel Inheritance.
6. Develop a Program using Interface.
7. Create and Import Package (Minimum Three Classes)
8. Create Our Own Exception for Employees.
(Constraints 1.Age > 18 and < 58 2.Dept No. 10 || 20 || 30 || 40)
9. Suspend, Resume and Stop Threads (Minimum 3 Threads)
10. Read and Write the content of a file using I/O Packages.
11. Display a Simple Banner Applet.
12. Event Handling Mechanism for Keyboard and Mouse .
13. Create a Login form.
14. Simple Web Presentation using HTML Tag (Use 3 Pages)
15. Create a Program for Moving Ball (Start and Stop)
16. Create a Simple Java Database with 4 fields.

MAJOR THEORY OPERATING SYSTEM

**L T P C
4 0 0 4**

PREAMBLE

- To have a thorough knowledge of processes, scheduling concepts, memory management, I/O and file management systems in an operating system.
- To learn about unix and linux operating system.
- Outcome: Students will obtain knowledge in information, memory, & interprocess communication management of operating system.

Unit – I

Operating System : What is an Operating System? – Computing System Architecture : Desktop Systems – Multiprocessor Systems – Distributed Processing – Cluster Systems – Hand held Systems – Functions and Structure – Difference services of the Operating System – Users of system Calls – issue of portability – users view of the operating system – Graphical user interface – Operating System Structure – virtual machine – booting.

(12hrs)

Unit – II

Information Management : File System – Device Driver – Terminal I/O – CD – ROM. Process Management : Introduction – What is process? Evolution of multiprogramming – Context Switching – Process States – Process State Transitions – Process Control Block – Process hierarchy – Operation on a process – create a process – kill a process – dispatch a process – change the priority of a process – Block a process – dispatch a process – time up a process wake up a process – Suspend/resume operation – Process Scheduling – Multithreading.

(12hrs)

Unit – III

InterProcess Communication : the producer/Consumer Problems – solutions to the producer – consumer problems – Classical IPC problems. Deadlocks : Introduction – Graphical representation of deadlock – deadlock prerequisites – deadlock strategies.

(12hrs)

Unit – IV

Memory Management : Introduction – Single Contiguous memory management – fixed partition memory management – variable partitions – non contiguous allocation – paging – segmentation – combined system – virtual memory management system.

(12hrs)

Unit – V

Information Management : File System – Device Driver – Terminal I/O – CD – ROM. Case Study : LINUX – Introduction – UNIX and LINUX : A Comparison – Process Management – Process Scheduling – Memory Management – File Management – Device Drivers – Security;

(12hrs)

Text Book :

1. Operating Systems – Achyut S Godbole, Tata McGraw – Hill Publishing Company, New Delhi, 2nd Edition, 2005.
2. Operating System – Harvey M. Deitel, Paul J Deitel. David R. Choftness, Third Edition, Pearson.

Reference :

1. Operating Systems, Internals and Design Principles, William Stallings, PHI, 2008.
2. Operating System Concepts – Silverschatz and Galvin, 6th Edition, John Wiley & Sons, Inc., 2004.
3. An Introduction to Operating Systems – Concepts and Practice, Pramod Chandra P. Bhatt, Prentice Hall of India, 2007.

ALLIED THEORY IV
OPERATION RESEARCH AND NUMERICAL ANALYSIS

L T P C

3 0 0 3

PREAMBLE

- To know about transportation and assignment problems in Operation Research
- To solve sequencing problem and simultaneous equations.
- Outcome : Students will able to solve Transportation Problem, Assignment Problem, & Sequencing Problem.

Unit – I

Transportation Problem : Introduction – General Transportation Problem – The Transportation Table – Formulation of the Transportation Problem – Triangular Basis in a Transportation Problem – Finding an initial basic feasible solution : North West Corner rule – Least – Cost Method or Matrix Minima Method – Vogel’s Approximation Method. (10hrs)

Unit – II

Assignment Problem : Introduction – Mathematical formulation of the problem – The Assignment method – The Travelling Salesman Problem. (8hrs)

Unit – III

Sequencing Problem : Introduction – Problem of Sequencing – Basic Terms used in sequencing – Processing n jobs through two machines – Processing n jobs through k machines – Processing 2 jobs through k machines. (9hrs)

Unit – IV

Simultaneous equations : Back substitutions – Gauss Jordan elimination method – Calculation of inverse of a matrix – Gauss – Seidel iteration method. (9hrs)

Unit – V

Difference Operators : Newton’s interpolation formula – Lagrange’s interpolation formula – Divide difference interpolation – Inverse interpolation. (9hrs)

Text Books :

1. KantiSwarup, P.K. Gupta and Man Mohan, “Operations Research”, Sultan Chand A Sons, New Delhi – Unit I, II and III.
2. S. Arumugam, A. Thangapandilssac and A. Somasundaram, “Numerical Analysis”, New Gamma Publishing House, Palayamkottai – Unit IV & V.

Reference :

1. T. Sankaranarayanan, Joseph A. Mangaladoss, “Operations Research”, Suja Publishing House, Tirunelveli.
2. R. Panneerselvam, “Operations Research”, 2nd Edition, PHI Learning (2011), New Delhi.
3. Vasishtha, “Numerical Analysis”, Krishna Prakashan Media (P) Ltd. (2010) , Meerut.

LINUX – LAB LIST

(Allied – IV Practical)

LINUX

L T P C
0 0 4 2

Objective: To understand and make effective use of Linux utilities and Shell scripting language to solve problems

Each exercise should be completed within three hours. It is compulsory to complete all the exercises given in the list in the stipulated time.

1. Use any text editor in linux(say vi) to enter a C program to find the largest of three numbers, compile using gcc and display the output.
2. Use any text editor in linux(say vi) to enter a C program to find the factorial of a given number, compile using gcc and display the output.
3. Linux commands
 - a. ls, mkdir, rmdir, cd, pwd, find, du(Directory oriented)
 - b. cat, cp, rm, mv, wc (File oriented)
 - c. ps, kill, batch, grep(Process oriented)
 - d. write, mail, wall (Communication oriented)
4. Linux commands
 - a. date, who, who am i, man, cal, echo, bc(General purpose)
 - b. Pipe, Filter
5. Write a shell script to display date in the mm/dd/yy format, time, username and current directory.
6. Write a shell script to find the sum of digits of a given number.
7. Write a program to generate Fibonacci series.
8. Write a program to check whether given string is palindrome or not
9. Write a shell script to find factorial of a given integer.
10. Write a shell script to generate mark sheet of a student. Take 3 subjects, calculate and display total marks, percentage and Class obtained by the student.

Reference Books:

1. Linux: A practical approach, B. Mohamed Ibrahim, Firewall Media
2. Comdex Linux and Open Office course kit revised and upgraded, Gupta, Wiley India.
3. A practical guide to Linux command, editors, and shell programming 2/e; Mark G Sobell, Prentice Hall.
4. Linux Lab - Open source Technology : Ambavade - Dreamtech

SEMESTER - V

MAJOR THEORY RELATIONAL DATA BASE MANAGEMENT SYSTEM

L T P C
5 0 0 4

Preamble

- The area of relational database management system is crowded with a vast number of quality products..
- This paper aims to provide the students a strong foundation in database technology and to learn the fundamentals of data models to make a study of SQL and relational database design.
- Outcome: Knowledge about design RDBMS,SQL,PL/SQL will be obtained.

Unit - I

Introduction : Purpose of Database Systems – Data Models – Database Languages – Transaction Management – Storage Management – DBA – Database Users – System Structure. E-R Model – Entities and Entity sets – Relationship Sets – Mapping Constraints – E-R Diagram.

(15hrs)

Unit – II

Structure of Relational Databases : Relational Algebra – Tuple Relational Calculus – Domain Relational Calculus – Integrity Constraints – Normalization – Boyce – Codd Normal Form – Third Normal Form – Fourth Normal Form – Domain – Key Normal Form.

(15hrs)

Unit – III

Basic SQL Operations : Creating a Table – Insert – Rollback – Commit – Auto commit – Delete – Update – Select, From, Where and Order by – Single value tests – Single value tests – LIKE – Simple tests against a list of values – Combining Logic – Dropping tables – Dropping a Column – Creating a table from a table – Data Functions – Conversation functions – Translate – Decode – Creating a view – Advanced Sub queries – Outer Joins – Natural and Inner Joins – Union, Intersect & Minus – Synonyms – Indexes – Tables space – Clusters – Sequences.

(15hrs)

Unit – IV

Basics of Object : Relational Databases : Objects – Abstract Data Types – Nested tables – Varying arrays – Large Objects – References Object Views – Naming conventions for objects – structure of an object – Users, Roles and Privilege : Creating a user – Password management – Three Standard roles – Format for grant command – Revoking privileges – What users can Grant : Moving to another user – Create Synonym – Create a role – Granting privileges to a role – Granting a role to another role – Adding Password to a role – Removing password from a role – Enabling & Disabling Roles – Revoking Privilege from a role – Drop role.

(15hrs)

Unit - V

An Introduction to PL/SQL : PL/SQL Overview – Declaration section – Executable commands section – Exception handling Section – Triggers : Syntax – Types of Triggers : Row – Level – Statement – Level – before & after – Instead of Schema – Database – Level Triggers – Enabling & Disabling Triggers – Replacing & Dropping Triggers – Procedures, Functions & Packages : Syntax – Compile – Replace – Drop Procedure, Functions & Packages – Cursor Management.

(15hrs)

Text Books:

1. Abraham Silberschatz, Henry F.Korth, S.Sudarshan “Database System Concepts” McGraw – Hill Education, 2010.
2. Kevin Loney, George Koch And the Experts at TUSC, “ORACLE 9i The Complete Reference”, Tata McGraw – Hill Publishing Company Ltd., New Delhi.
3. Database Systems RamezElmasri, Shankant B. Navathe – 6th Edition – Pearson.

Reference :

1. Rajesh Narang – “Database Management Systems”, PHI Learning Pvt. Ltd., 2006.
2. Raghu Ramakrishnan, Johannes Gehrke, “Database Management Systems”, McGraw – Hill Education, 2002.
3. Michael Abbay, Mike Corey, Ian Abramson, “ORACLE 9i A Beginner’s Guide”, TataMcGraw – Hill Publishing Company Ltd., New Delhi, 2002.
4. The Database Application Book using the MYSQL Database Gehani – Universities Press.

MAJOR PRACTICAL

L T P C

0 0 6 4

RELATIONAL DATA BASE MANAGEMENT SYSTEM – LAB LIST

1. Create a simple table and write three queries to process a table.
2. Demonstrate query processing using aggregate operators.
3. Write oracle code for demonstrating the correlated sub queries.
4. Write oracle code to create employee records and delete the retired employees and store it on to another table with same structure.
5. Create a course table and create a procedure that displays the instructor details, class details and student details of a particular table which the user inputs.
6. Write a database trigger before insert for each row on the course table not allowing transactions on Sundays and Saturdays.
7. Create a package that contains overloaded functions for
 - i. Adding five integers
 - ii. Subtracting two integers
 - iii. Multiplying three integers
8. Write PL/SQL block to increase the salary by 10% if the salary is > 2500 and < 3000.
9. Write PL/SQL block to display the names of those employee getting salary > 3000. Create and insert records into the following tables. (Insert minimum 10 records in each table).
10. Create Student information table.
11. Create Department information table.
12. Create Instructor's information table.
13. Create Course information table.
14. Create Schedule type details.
15. Create Student grade information table in PL/SQL.

MAJOR THEORY

DATA MINING AND DATA WAREHOUSING

L T P C

4 0 0 4

Preamble

- To study about data mining techniques such as clustering, classification
- To know about fuzzy sets and neural network
- To know about data warehousing.
- Outcome :Skills about data mining techniques & data warehousing will be developed.

Unit – I

Introduction : Data Mining Tasks – Data Mining Vs Knowledge Discovery in Databases – Data Mining Issues – Data Mining Metrics – Social Implications of Data Mining – Data Mining from a Database Perspective.

Related Concepts – Database/OLTP Systems – Fuzzy Sets and Fuzzy Logic – Information Retrieval – DSS – Dimensional Modeling – OLAP – Web Search Engines – Statistics – Machine Learning – Pattern Matching.

(13hrs)

Unit – II

Data Mining Techniques: Introduction – A Statistical Perspective on Data Mining – Similarity Measures – Decision Trees – Neural Networks – Genetic Algorithms – Classification – Introduction – Statistical Based Algorithm – Distance Based Algorithms – Decision Tree – Based Algorithm – Neural Network – Based Algorithm - Rule Based Algorithms – Combining Techniques.

(12hrs)

Unit – III

Clustering : Introduction – Similarity and Distance Measures – Hierarchical Algorithms – Partitional Algorithms – Clustering Large Database – Clustering with Categorical Attributes – Comparison.

Association Rules – Introduction – Large Item Sets – Basic Algorithms – Parallel and Distributed Algorithms – Incremental Ruling – Advanced Association Rule Techniques – Measuring the Quality of Rules.

(12hrs)

Unit – IV

DataWare Housing: Definition – Delivery Process – System Process – Process Architecture – Database Schema – Partitioning Strategy – Aggregation – Data Marting – Meta Data.

(13hrs)

Unit – V

System and Data Warehousing : Process Managers – Hardware Architecture – Physical Layout – Security – Back Up and Recovery – Service Level Agreement – Operating Data Ware Housing – Planning – Tunning – Testing the Data Warehousing.

(10hrs)

Text Books :

1. Margarat H. Dunham and S. Sridhar, “Data Mining Introductory and Advanced Topics”, Pearson Edition – Unit : I, II and III
2. Sam Anahory and Dennis Murray, “Data Ware Housing in the Real World, A Practical guide for Building Decision Support Systems”, Pearson Education – Unit : IV & V.
3. Data Mining Techniques Arun K.Pujari- Third Edition-University Press.

Reference :

1. Jiawettan Champaign MichelineKamber, University of Illions at Urbana “Data Mining : Concepts and Techniques 2 – ed”, Morgan Kaufann Publishers.

**MAJOR THEORY
SOFTWARE ENGINEERING**

**L T P C
4 0 0 4**

Preamble

- To learn the methodologies involved in the development and maintenance of software over its entire life cycle and
- To understand the concepts of modeling, implementation and various testing strategies and the use of CASE Tools.
- Outcome : Obtain knowledge in software development process, testing & maintenance as well as CASE Tools.

Unit – I

Software Engineering : Definition ,Software Engineering Activities, Skills and challenge – Components of Software Engineering : SSAD and OOSAD – Software Life Cycle Model – Software Development Model – CMM for Process Improvement- Software Process Model – Software Estimation : Size Effort and Cost : Software Metrics : Introduction – Estimation of Effect and Schedule – COCOMO – Software Cost Estimation.

(13hrs)

Unit – II

Software Quality Assurance : Testing Techniques for SQA – Software Testing Strategies – Software Engineering Tools – Introduction – Analysis Tools – Requirements Engineering – Work Breakdown Structure – Prototyping – System Analysis – System Modeling – Structure System Analysis – Software Requirement Specification.

(11hrs)

Unit – III

System Design : Introduction – Data Structure and Database Design- Design Development Process – System Design Architecture – System Behavior design – Architecture and Choices – Architecture and Non – Functional Requirements – Design Specification Documentation – User Interface Design – User Interface Analysis and Design – Guidelines for Designing UI Components – Procedural Design.

(11hrs)

Unit – IV

Object Oriented Approach and Technology : Basis of Objects – Object Properties – Object Oriented System Development Cycle – UML – Static Class Diagrams – Use Case Diagrams – Behavior Diagrams.

(12hrs)

Unit – V

Software Project Management : Introduction -- Basic Concepts – Project Management – Software Development Process Management – Management of Software Workflows – Evaluation of Workflow Process – Integration of Software Engineering Management and Project Life Cycle – Testing for Quality – Functional Testing – System Testing – User Satisfaction Testing – Test Cases and Test Plans – Software System Maintenance.

(13hrs)

Text Book :

1. Waman S. Jawadekar, “Software Engineering Principles and Practice”. Tata McGraw Hill Education Private Limited, New Delhi.

Reference :

1. Roger S. Pressman, “Software Engineering A Practitioner Approach”, McGraw – Hill Higher Education.
2. Timothy C. Lethbridge and Robert Laganieri, “Object – Oriented Software Engineering”, Tata McGraw – Hill Publishing Company Limited, New Delhi.
3. Ian Sommerville, “Software Engineering”, Pearson Education Pte.Ltd.Delhi

SEMESTER - VI

MAJOR THEORY DATA COMMUNICATIONS AND NETWORKING

L T P C
4 0 0 4

PREAMBLE

- To learn the concepts, terminologies and technologies used in modern days data communication and computer networking.
- To understand the functions of different networking layers.
- To make the students to get familiarized with different protocols and network components.
- Outcome : Students are obtained skills in different networking layers, protocols,& components while data communication.

Unit – I:

Data Communication : Standard Organizations – Line Configuration – Topology – Transmission Mode – Categories of Networks – Internet Works – The Model – Functions of the Layers. Transmission of Digital Data : Interfaces and Modems – Digital Data Transmission – DTE – DCE Interface – other Interface Standards.

(12hrs)

Unit – II

Transmission Media: Guided Media – Unguided Media – Multiplexing – Many to one/one to Many, Frequency – Division Multiplexing (FDM), Wave – Devision Multiplexing (WDM), Time – Division Multiplexing (TDM).

(12hrs)

Unit – III

Error Detection and Correction : Types of Errors – Detection – Redundancy – Vertical Redundancy Check (VRC) – Longitudinal Redundancy Check (LRC) – Cycle Redundancy Check (CRC) – Checksum – Error Correction. Data Link Control – Line Discipline – Flow Control – Error Control.

(12hrs)

Unit – IV

Switching : Circuit Switching – Packet Switching – Message Switching – Integrated Services – Digital Network (ISDN) – Services – History – Subscribe Access to the ISDN – The ISDN Layers – Broadband ISDN – Future of ISDN.

(12hrs)

Unit – V

Frame Relay : Introduction – Frame Relay Operation – Frame Relay Layers – Congestion Control Leaky Bucket Algorithm – Traffic Control. Networking and Internetworking devices – Repeaters – Gateways – Other Devices – Routing Algorithm, Distance Vector Routing – Link State Routing.

(12hrs)

Text Book :

1. Data Communications and Networking – “Behrouz A Foruzan”, Tata McGraw Hill Publishing Company Limited, New Delhi. 2nd Edition 2006.
2. Data Communications and Networking – Wayne Tomain – Pearson.

Reference Book :

1. Computer Networks – “Andrew S. Tanenbaum”, - Prentice Hall of India, 4th Edition, 2006.
2. Data and Computer Communications “William Stallings Prentice Hall of India 2007.

**MAJOR THEORY
MULTIMEDIA TECHNOLOGY**

**L T P C
4 0 0 4**

PREAMBLE

- To impart the fundamental concepts of Multimedia.
- To study the graphics techniques and algorithms, multimedia concepts.
- To enable the students to develop their creativity.
- Outcome : Basic ideas of images, audio, video & animation are obtained.

Unit – I

Introduction : Multimedia Presentation and Production – Characteristics of Multimedia. Presentation – Multiple Media – Utilities of Multi – sensory perception – Hardware and Software, Requirements. Digital Representation : Analog Representation – Waves – Digital. Representation – Need for Digital Representation – Analog to Digital Conversion – Digital to Analog Conversion. Text : Types of Text – Unicode Standard – Font – Insertion of Text – Text Compression – File Formats.

(12hrs)

Unit – II

Image : Image Types – Seeing Color – Color Models – Basic Steps for Image Processing – Scanner – Digital Camera – Interface Standards – Specification of Digital Images – CMS – Device Independent Color Models – Image Processing Software – File Formats – Image Output on Monitor and Printer.

(12hrs)

Unit – III

Audio : Introduction – Acoustics – Nature of Sound Waves – Fundamental Characteristics of Sound – Microphone – Amplifier – Loudspeaker – Audio Mixer – Digital Audio – Synthesizers – MIDI – Basics of Staff Notation – Sound Card – Audio Transmission – Audio File Formats and CODECs – Audio Recording Systems – Audio and Multimedia – Voice Recognition and Response – Audio Processing Software.

(12hrs)

Unit – IV

Video : Analog Video Camera – Transmission of Video Signals – Video Signal Formats – Television Broadcasting Standards – Digital Video - Digital Video Standards – PC Video – Video Recording Formats and Systems – Video File Formats and CODECs – Video Editing – Video Editing Software.

(12hrs)

Unit – V

Animation :

Types of Animation – Computer Assisted Animation – Creating Movement – Principles of Animation – Some Techniques of Animation – Animation on the Web – Special Effects – Rendering Algorithms. Compression : MPEG – 1 Audio – MPEG – 1 Video – MPEG – 2 Audio – MPEG – 2 Video.

(12hrs)

Text Books :

1. Principles of Multimedia – Ranjan Parekh, 2007, TMH.

Reference Books :

1. Multimedia : Making it Work – Tay Vaughan, 7th Edition, TMH.
2. Comdex Multimedia And Web Design – Vikas Gupta, Dream Tech Press 2007.
3. Multimedia Applications – Ralf Steinmetz, KlaraNahrstedt – Springer – International Edition.

MAJOR THEORY NET PROGRAMMING

L T P C
5 0 0 4

PREAMBLE

- The objective of this course is to teach the design of web application for the students who already have mastered the fundamentals of the language.
- Students will learn to build and test larger projects using procedures, objects, debugging tools and data files.
- Outcome: Students can develop programme in .Net application, HTML,XML&ADO access.

Unit – I

The .NET Frame Work : Learning the .NET Languages – Introduction to ASP.NET and IIS – Types, Objects and Name Spaces – ASP .NET Application – Building ASP.NET Website.

(15hrs)

Unit – II

Web Form Fundamentals : HTML Controls – Web Controls – Validation Controls – Navigation Controls – Data Controls – Login Controls – CSS – Working with CSS in Web Developer – More Programs.

(15hrs)

Unit - III

State Management : Session – View – Query String – Cookies – Tracing – Logging – Error Handling – User Controls – ASP.NET Ajax – Example Programs.

(15hrs)

Unit – IV

ADO.NET :Over View of ADO.NET – ADO.NET Access – Data Binding – Data List – DATA Grid and Repeaters – Working with Data base – Sample Programs.

(15hrs)

Unit – V

XML : Using XML – XSD – XSLT – Web Services – Creating Web Services – Using Web Services – Caching – ASP.NET Security.

(15hrs)

Text Book :

1. Mathew Mac. Donald, “ASP.NET The complete Reference”, Tata McGraw – Hill Publishing Company Ltd., New Delhi.
2. ImarSpanjaars, ASP.NET 3.5 in C# and V.B. : “Wiley India Pvt Ltd.

Reference :

1. O'REILLY, Jesse Liberty, Dan Hurwitz and Brain Mac Donald, “Learning ASP.NET 3.5”, II Edition.

MAJOR PRACTICAL

L T P C
0 0 6 4

NET PROGRAMMING – LAB LIST

1. Arithmetic Operations Using Text Box and Button
2. Adding and Removing Items in runtime using Drop Down List and List Box.
3. Upload and display Image using File Up Load Control.
4. Display Date, Day, Month, Year, Day of Week, Day of the Year using Calendar Control.
5. Create an Advertisement using Ad rotator Control.
6. Create a Registration form and apply ASP.NET validation Controls.
7. Binding data in Grid view using Source.
8. Create small pay roll.
9. Create user control with Source.
10. Create a Login Page using Session Variable.
11. Create Student Mark List using SQL Provider.
12. Grid View, Edit, Update, Cancel and Delete using Source.
13. Create a Crystal Report.
14. Create a Simple Web Page Using CSS.
15. Create a Master Page.

GROUP A (MAJOR ELECTIVE – I)

MAJOR ELECTIVE THEORY : E- COMMERCE

L T P C
4 0 0 4

PREAMBLE

- To impart the fundamental concepts of E-Commerce.
- To study the traditional transactions & E-Payment System.
- To enable the students to develop Cybercash model Of security.
- Outcome:students can develop E-commerce system for different Business as well as cybercash model of security.

Unit – I

Introduction to E-Commerce : Networks – Transactions – Commercial Transactions – Why use E – Commerce – Internet and other Novelties – Advantages of E – Commerce – Electronic Transactions Today - World Wide Web.

(12hrs)

Unit – II

Security Technologies : Why Internet Is Unsecure – Internet Security Holes – Cryptography : Objectives – Codes and Ciphers – Breaking Encryption Schemes – DES Cryptographic Applications – Digital Signature – Nonrepudiation an Message Integrity.

(12hrs)

Unit – III

Traditional Transactions : Updating – Offline and Online Transaction – Secure Web Servers – Required Facilities – Digital Currencies and Payment Schemes – Protocol for the Public Transport – Security Protocols – Credit Card Business Basics.

(12hrs)

Unit – IV

Online Commerce Options : Functions and Features – Payment Systems : Electronic, Digital and Virtual Internet Payment Schemes – Account Setup and Costs – Virtual Transaction Process – InfoHaus – Security Considerations.

(12hrs)

Unit – V

CyperCash : Model – Security – Customer Protection – Client Application – Selling through CyperCash – Servers and Commercial Environments – Payment Methods – Server Market Orientation – Netscape Commerce Server – Microsoft Internet – Servers – Smart Cards. (12hrs)

Text Books :

1. Pete Loshin, "Electronic Commerce", 4th edition, An imprint of dlaxmi publications pvt. Ltd., New Delhi 2004.
2. Greestein, "E-Commerce", Tata Mc – Graww Hill Pvt. Ltd., 2000.
3. E-Commerce Kenneth C. Laudon Caryl Guercio Traver-10th Edition-Pearson.

MAJOR ELECTIVETHEORY : ARTIFICIAL INTELLIGENCE

L T P C
4 0 0 4

PREAMBLE

- To learn the concepts, terminologies and technologies used in Artificial Intelligence.
- To study different types of AI algorithm.
- To make the students to study about Expert Systems.
- Outcome: students will obtain knowledge in AI algorithm & Expert Systems.

Unit – I

Artificial Intelligence: The AI Problem – What is an AI Technique? – Tic – Tac – Toe – Defining the Problem as a State Space Search – A Water Jug Problem – Control Strategies – Breadth – First Search – Depth – First Search – Heuristic Search – Problem Characteristics.

(12hrs)

Unit – II

Generate and Test : Hill Climbing – Best – First Search – The A* Algorithm – Problem Reduction – AND – OR Graphs – The AO * Algorithm – Means – Ends Analysis.

(12hrs)

Unit – III

Knowledge Representation Issues : Representation and Mappings – Approaches to knowledge Representation – Using Predicate Logic – Representing Simple Facts in Logic – Representation Simple Facts in Logic – Representing Instance and Isa Relationships – Computable Functions and Predicates.

(13hrs)

Unit – IV

Game Playing : The Minimax Search Procedure – Adding Alpha – Beta Cutoffs – Planning : An Example Domain : The Blocks World – Components of a Planning System – Goal Stack Planning – Undertaking : What is Undertaking? – What is Understanding? – What Makes Understanding Hard?

(12hrs)

Unit – V

Expert Systems : Representing and Using Domain Knowledge – Expert System Shells – Explanation – Knowledge Acquisition – Perception And Action : Real – Time Search – Perception – Action – Robot Architectures.

(11hrs)

Text Books :

1. Elaine Rich, Kevin Knight, “Artificial Intelligence”, Tata MCGraw – Hill Publishing Company Limited, New Delhi.

Reference :

1. Stuart Russell, Peter Norving, “Artificial Intelligence, A Modern Approach”, PHI Learning Private Limited.
2. Dan W. Patterson “Introduction to Artificial And Expert Systems”, PHI Learning Private Limited.

MAJOR ELECTIVE THEORY : INTERNET SECURITY

L T P C
4 0 0 4

PREAMBLE

- To learn the basic concepts of computer security.
- To know the different classes of attack in security.
- To make the students to get familiarized with firewalls, proxy servers & cryptography.
- Outcome: Knowledge will be obtained in internet security attacks, cryptography concepts.

Unit – I

Introduction : Why require a security? – Picking a Security Policy – Strategies for a Secure Network – The Ethics of Computer Security – Security Threats and levels – Security Plan (RFC 2196).

(12hrs)

Unit – II

Classes of Attack : Stealing Passwords – Social Engineering – Bugs and Backdoors – Authentication Failures – Protocol Failures : Information Leakage – Exponential Attacks – Viruses and Worms – Denial – of – Service Attacks – Botnets – Active Attacks.

(12hrs)

Unit – III

Computer Security : What are Viruse, Trojan Horse, Worms? – How to protect the computer against virus – What is the Structure of Viruse?

(12hrs)

Unit – IV

Firewalls and Proxy Servers : Kinds of Firewalls : Packet Filters – Application – Level Filtering – Circuit – Level Gateways – Dynamic Packet Filters – Distributed Firewalls – What Firewalls Cannot Do – Filtering Services : Reasonable Services to Filter – Digging for Worms – Packet – Filtering – Implementing Polices (Default allow, Default Deny) on Proxy.

(12hrs)

Unit – V

Cryptography : Introduction to Basic Encryption and Decryption, Diffie – Hellman Key Exchange – Concept of Public Key and Private Key – Digital Signatures.

(12hrs)

Text Book :

1. William R. Cheswick, Steven M. Bellovin and Aviel D. Rubin, "Firewalls and Internet Security: Repelling the Wily Hacker", Second Edition, Pearson Education.

Reference :

1. Speed, "Internet Security : A Jumpstart For Systems Administrators And IT Managers", Elsevier India.
2. BehrouzForouzan, "Cryptography And Network Security E/2", Tata McGraw Hill Education.

GROUP B (MAJOR ELECTIVE – II)

MAJOR ELECTIVETHEORY: WEB PROGRAMMING

L T P C

4 0 0 4

PREAMBLE

- To learn the concepts, terminologies and technologies used in web programming.
- To know about the functions of XHTML.
- To make the students to get familiarized with java script & server side programming.
- Outcome :Basic ideas in XHTML,java script ,server & client side web programme will be developed.

Unit – I

Introduction to Internet and World Wide Web :Components to Enable Internet Access – Features of Internet Explorer and Firefox – Browser Setting – Web 2.0. – Search Engines – Content Networks – User Generated Content – Blogging – Social Networking and Media Tagging – RIA – Web Services, Mashups, Widgets and Gadgets – Location Based Services – Web 2.0. Models.

(12hrs)

Unit – II

Introduction to XHTML :Structure of XHTML Document – Headings – Links – Images – Lists – Tables – Forms – Frames – Internal Linking – Web Page Design – Introduction to CSS – Inline Styles – Embedded Style Sheets – Conflicting Styles – Linking External Style Sheets – Positioning Elements – Backgrounds – Element Dimensions – Box Model and Text Flow – Media Types – Drop Down Menu – User Style Sheets – Sample Web Applications.

(10hrs)

Unit – III

Introduction to Java Script: Structure of Java Script – Sample Programs – Memory Concepts – Operators – I/O Structures – Control Structures : Selection and Multiple Selection Structures – Repetition Structures – break and continue structures – Functions : Programmer Defined Functions – Function Definition – Scope Rules – Global Functions – Recursion – Example Programs.

(13hrs)

Unit – IV

Arrays : Declaring and Allocating Arrays – Passing Arrays to Functions – Multidimensional Arrays – Objects : Object Technology Concepts – Various JavaScript Objects – DOM Nodes and Trees – DOM Collections – Events and Event Models – XML Basics – XML Namespaces – DTD – XML Schema Documents – XML Vocabularies – XSL – RSS – ActiveX Controls Sample Web Applications.

(13hrs)

Unit – V :

Server Side Programming : Web Servers : HTTP Transactions – IIS and Apache Servers – Databases : MySQL – ADO.NET Object Model – JDBC – PHP : PHP Basics – Form Processing – Dynamic Content – ASP.NET 2.0. Introduction – Developing Sample Web Application – Web Controls – Session Tracking – Case Studies.

(12 hrs)

Text Books :

1. Deitel, Deitel, “Internet & World Wide Web- How to Program”, 4th Edition, Pearson Education, 2009.

MAJOR ELECTIVE THEORY : SYSTEMS PROGRAMMING

L T P C

4 0 0 4

PREAMBLE

- To learn the basic concepts of assemblers, loaders & assembly language.
- To understand the design of assemblers & loaders
- To make the students to get familiarized with different phases of compilers.
- Outcome : Basic ideas about assemblers, loaders, & compilers are obtained.

Unit – I

Evolution of the components of a Programming System : Assemblers – Loaders – Macros – Compilers – Formal Systems. MACHINE STRUCTURE, MACHINE LANGUAGE, AND ASSEMBLY LANGUAGE : General Machine Structure – Machine Language – An Assembly Language.

(12hrs)

Unit – II

ASSEMBLERS : General Design Procedure – Design of Assembler – Table Processing : Searching and Sorting – Linear Search – Binary Search – Sorting – Interchange Sort – Shell Sort – Bucket Sort – Radix Exchange Sort – Address Calculation Sort – Comparison of sorts – hash or random entry searching.

(12hrs)

Unit – III

MACRO LANGUAGE AND THE MACRO PROCESSOR : Macro Instructions – Features of a Macro Facility – Macro Instructions Arguments – Conditional Macro Expansion – Macro Calls within Macros – Macro Instruction Defining Macros – Implementation within a Assembler.

(12hrs)

Unit – IV

LOADERS : Loader Schemes – Compile and – go – Loaders – General Loader Scheme – Absolute Loaders – Subroutine Linkages – Relocating Loaders – Direct – Linking Loaders – Other Loader Schemes – Binders, Linking Loaders, Overlays, Dynamic Binders – Design of an Absolute Loader – Design of a Direct – Linking Loader – Specification of problem – Specification of Data Structure – Format of a Data Bases – Algorithm.

COMPILERS : PART I

Statement of Problem – Recognizing Basic Elements – Recognizing Syntactic Units and Interpreting Meaning – Intermediate Form – Storage Allocation – Code Generation – Optimization (Machine – Independent) – optimization (Machine – dependent) – Assembly Phase – General Model of Compiler.

(12hrs)

Unit – V

PART 2 : Phases of the Compiler : Lexical Phase – Syntax Phase – Interpretation Phase – Optimization – Storage Assignment – Code Generation – Assembly Phase – Phase of a Compiler.

Part – 3 – Data Structures – Recursion, call and return statements – storage classes – use – implementation – Block Structure – Nonlocal go to's – Interrupts – Pointers.

(12hrs)

Text Book

1. “Systems Programming”, John J. Donovan, McGraw – Hill International Editions.

MAJOR ELECTIVE THEORY : PARALLEL COMPUTING

L T P C
4 0 0 4

PREAMBLE

- To learn the concepts, terminologies and technologies used in modern days parallel computing.
- To understand the designing parallel algorithms & master slave programming.
- To make the students to get familiarized with distributed systems.
- Outcome : Design knowledge in Parallel algorithms & master slave programming will be acquired.

Unit – I

Introduction to Parallel Processing :Definition – Serial Vs Parallel Communication – Data Transfer Modes – Why use Parallel Processing – Parallel Processing Architecture – Types of Parallelism – Multi Processing – SISD – SIMD.

(12hrs)

Unit – II

Introduction to Distributed Environment : Introduction – Client – Server Paradigm – Threads in Distributed Systems – Remote Procedure Call – Remote Object Invocation – Message Oriented Communication – Unicasting – Group Communication – Reliable and Unreliable Multicasting.

(12hrs)

Unit – III

Designing Parallel Algorithms:Methodological Design – Partitioning – Communication – Agglomeration – Mapping – Design and Development of Parallel Processing Systems – Unix Work Station Clusters.

(12hrs)

Unit – IV

Master Slave Programming : Threads and Multi Threaded Programming – Scheduling – Concurrency – MISD – MIMD – Semaphore – DeadLock – Live Lock – Designing Parallel Programs.

(12hrs)

Unit – V

Introduction to Fault Tolerance : Distributed Commit Protocol – Distributed File System Architecture – Issues in Distributed File Systems – Distributed Object – Based System – CORBA – com.

(12hrs)

Text Book

1. An Introduction to Parallel Computing, Design and Analysis of Algorithms, 2nd Edition, A. Grama, V. Kumar, A. Gupta, Addison Wesley, 2003
2. Parallel Computing : Theory and Practice, M J Quinn, McGraw Hill, 1996.
3. Parallel Processing Architecture – Introduction to Computers and Information Technology, D. Glory Ratna Mary, S. Selvanayahi, V. Joseph Peter, Shekina Publications.

Reference Books

1. MukeshSinghal, “Advanced Concepts in Operating Systems”, McGraw Hill Series in Computer Science, 1994.
2. George Coulouris, Jean Dollimore, Tim Kindberg, “Distributed Systems Concepts and Design”, Third Edition, Pearson Education Asia, 2002.

SEMESTER III

SKILL BASED SUBJECT SYLLABUS

L T P C
0 2 4 4

PREAMBLE :

Skilled Based Subjects are Practical oriented. Two hours should be assigned for tutorial class and four hours of practical to do the given practical list.

Sample should be provided to the students for designing the given list.

Outcome : Skills in page maker,photoshop,& Coreldraw are developed.

Subject : DTP

Page Maker

1. Design of ID Card (3" * 2").
2. Design of Visiting Card (3.5" * 2").
3. Design of an attractive invitation Card (5.5" * 8").
4. Design Letter Pad. (7.5" * 9").
5. Preparation of a small booklet with 6 pages (3.5" * 4.5").
6. Design a hand bill (5.5" * 8.5").
7. Create a advertisement for your college.
8. Design your college progress card.
9. Create a receipt bill with counter foil.
10. Create a graph/pie chart.

Photoshop

1. Design of a brochure for an institution.
2. Seasonal Greeting Card.
3. Transporting an image from one background to another.
4. Design a web page poster (1004 * 750)/text book cover page.
5. Crop and image/rotate an image.

CorelDraw

1. Create an object and fill with multiple colours.
2. Design a book cover.
3. Create a frame and enter a paragraph with different formats of text.
4. Export any five image in a single applications.
5. Design page frame by inserting image and objects.

SEMESTER IV SKILLED BASED SUBJECT SYLLABUS

**L T P C
0 2 4 4**

Preamble :

Skilled Based Subjects are Practical oriented. Two hours should be assigned for tutorial class and three hours of practical to do the given practical list.

Sample should be provided to the students for designing the given list.

Outcome : Flash & Dreamweaver skills will be acquired.

Subject : Animation Applications

FLASH

1. Create a Simple Presentation.
2. End a Movie Clip using Script.
3. Start a graphic animation at a specific frame.
4. Text animation using motion tweening.
5. Activate a new window/page using buttons.
6. Bouncing ball with sound effect.
7. Create a scrolling gallery in a page.

DREAMWEAVER

1. Creating a New Dreamweaver Site.
2. Adding Images, Text and Links.
3. Flash Buttons and Flash Text.
4. Creating a Rollover Images.
5. Creating Tables – FAQs.
6. Designing Web Pages with Frames.
7. Inserting and Formatting a Table in Standard View.
8. Design navigation Bar with Images.

SEMESTER V Mini Project

L T P C

0 0 5 4

Students are to take up sample project development activities with the guidelines given below

Preparing a project- brief proposal including

- Problem Identification
- Developing a model for solving the problem
- A statement of system /process specification proposed to be developed (Data Flow Diagram)
- List of possible solution including alternatives and constraints
- Cost benefit analysis
- Time line activities

A report highlighting the design finalization [Based on functional requirements & standards (if any)]

A presentation including the following

- Implementation phase (Hardware/Software/both)
- Testing & Validation of the developed system
- Learning in the project

Consolidated report preparation

SEMESTER VI
Major project

L T P C

0 0 7 7

The objective of the project is to enable the students to work in a project of latest topic/research area/industrial applications. Each project student shall have a guide who is a faculty member.

During this semester the students are expected to do literature survey, formulate the problem and form a methodology of arriving at the solution of the problem. Also during this semester, the students are expected to complete the project and submit a full-fledged report comprising of the complete system developed along with implementation and test results.

The departmental committee shall examine the students and the evaluation is based on continuous internal assessment comprising of two reviews.

After two reviews internal is based on seminar demo and Internal viva-voce will be given by the guide. At the end of the semester, a viva-voce examination will be conducted.

NON – MAJOR ELECTIVE PAPERS – I

Other than B.Sc. (IT), B.Sc. (CIT) & B.Sc. (ISM)

INTRODUCTION TO INFORMATION TECHNOLOGY

L T P C
2 0 0 2

Preamble

- To discuss the basic structure and operation of a digital computer and to discuss in detail the operation of the arithmetic unit including the algorithms.
- To study the memory system including Cache memories and to study different way of communicating with I/O devices and also scripting languages.
- Outcome : Obtain knowledge in Computer storage, I/O media,& Internet

Unit – I

Information Technology Basics : Introduction, Information, Technology, Information Technology, Present Scenario, Role of Information Technology, Information Technology and Internet, Careers in IT industry. **Computer Organization and Architecture** : Central Processing Unit, Inside a Computer, Data representation in Computer, Coding Schemes.

(6hrs)

Unit – II

Computer Memory and Storage Introduction: Memory Hierarchy, Random Access Memory (RAM), Read Only Memory (ROM), RAM, ROM and CPU Interaction, Types of Secondary Storage Devices, Magnetic Tape, Magnetic Disk, Types of Magnetic Disk, Optical Disk, type of optical disks.

(6hrs)

Unit – III

Input Output Media : Introduction, types of input devices, types of output devices. **Multimedia Essentials** : Introduction, Multimedia : Definition, Building Blocks of multimedia, multimedia system, multimedia applications, Virtual reality. (6hrs)

Unit – IV

The Internet : Introduction Evolution of Internet – Basic Internet Terms – Getting Connect to Internet – Internet Applications – Data over Internet. Internet Tools : Introduction – Web Browser – Browsing Internet using Internet Explorer – E – Mail – Search Engines – Instant Messaging.

(6hrs)

Unit – V

Emerging Trends in IT : Introduction, E-Commerce – Electronic Data Interchange – Mobile Communication – Bluetooth – Global Positioning System – Infrared Communication – Smart Card – Imminent Technologies.

(6hrs)

Text Books :

1. Introduction to Computers and Information Technology, D. Glory Ratna Mary, S. Selvanayahi, V. Joseph Peter, Shekina Publications.

Reference Books :

1. Introduction to Information Technology ITL Education Solutions Limited, Pearson Education.
2. Fundamentals of Information Technology By Alexis Leon & Mathews Leon Vikas Publication – New Delhi.

NON – MAJOR ELECTIVE PAPERS – II
Other than B.Sc. (IT), B.Sc. (CIT) & B.Sc. (ISM)

BASIC PROGRAMMING DESIGN

L T P C
2 0 0 2

Preamble

- To discuss the basic programming Language and Debugging.
- To study the multidimensional arrays.
- Outcome : Students will acquire knowledge in algorithms,flowchart,& arrays.

Unit – I

Introduction: Algorithms, Flowcharts, Types of Programming Languages, Selection of Programming Languages, Program Writing Debugging.

(6hrs)

Unit – II

Flow Charts: Elementary Concepts – Introduction, Kinds of flow charts, symbols used in flow charts, Advantages of flow charts, examples, constants and variables.

(6hrs)

Unit – III

Flow Charting Simple Computation : Introduction, illustrating examples, conclusions.

(6hrs)

Unit – IV

Subscripted Variables: Introduction, basic concepts of subscripted variables, one dimensional array, illustrating examples, conclusions.

(6hrs)

Unit – V

Multidimensional Arrays: Introductions, definitions, matrix operations, illustrating examples, beyond two dimensions, conclusions – Introduction to File Structure.

Introduction, Concept of data files, Types of Data Files, File Organization methods, File Processing activities, Conclusions.

(6hrs)

Text Book :

1. Basic Programming Design, D.S. Arul Selvan& A.A. RegiesonSylum Shalom Publications, Green St, Nagercoil.

Reference :

1. Insight into Flowcharting Raj K. Jain By S. Chand & Company Ltd.