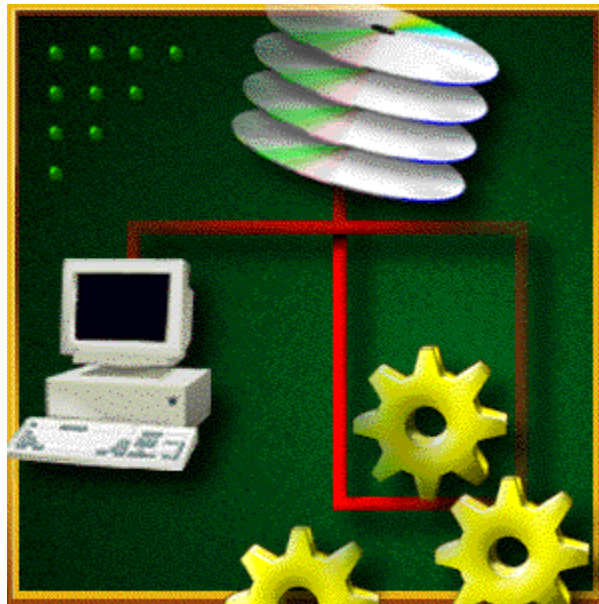


**ARULMIGU PALANIANDAVAR ARTS COLLEGE FOR WOMEN, PALANI**  
**(Accredited with B++ by NAAC**  
**(AUTONOMOUS)**

**BACHELOR OF COMPUTER APPLICATIONS**  
**(2011-2014 BATCH)**



**PG DEPARTMENT OF COMPUTER SCIENCE**

**ARULMIGU PALANIANDAVAR ARTS COLLEGE FOR WOMEN**

**PG DEPARTMENT OF COMPUTER SCIENCE**

**BACHELOR OF COMPUTER APPLICATION**

**REGULATIONS**

**1. Qualification for Admission**

- Candidate should have passed the Higher Secondary Examination conducted by the board of Higher Secondary Examination, Govt. of Tamilnadu or any other Examination accepted by the syndicate as equivalent there to with Mathematics or Computer Science and at least one of the following subject.
  - Physics / Chemistry / Commerce.

**2. Duration of the course**

The students will undergo the prescribed course of study for a period of not less than three academic years (Six semesters).

**3. Medium of Instruction:** English

**4. Subject of Study:** As given in Appendix

**5. Scheme of Examination:** As given in Appendix

**6. Eligibility of the degree:**

- Candidates will be eligible if they complete the course with the required credits and pass in the prescribed examinations.
- The candidate requires 75% of attendance to attend the semester examination.
- Three internal exams will be conducted and best of two will be considered for the internal mark consolidation
- The passing minimum is 40% (both in internal and external separately) in each paper.
- The candidate can select three electives / a project. Two electives have to be studied in the fifth and one in the sixth semester, whereas the project will be undergone in the sixth semester.

- Project can be done within the Department. The candidate can undergo the project individually or in a group of two.
- The candidate should undergo a compulsory project in sixth as a core.
- The Department offers two non-major elective courses. The students have to appear for two non-major elective course offered by other Departments.
- The students have to study six skill based courses.
- To get graduation the course the students should gain minimum 140 credits.

## 7. Evaluation

- Students performance will be evaluated both internally and externally. The ratio of internal and external assessment is 25:75.
- Internal assessment is as follows:

Assignment	:	5 marks
Seminar	:	5 marks
Written Test	:	15 marks

For the practical, Internal & External assessment is as follows:

Internal	:	40 marks
External	:	60 marks

**ARULMIGU PALANIANDAVAR ARTS COLLEGE FOR WOMEN**

**COMMON ACADEMIC STRUCTURE IN AUTONOMY**

**PG DEPARTMENT OF COMPUTER SCIENCE**

**BACHELOR OF COMPUTER APPLICATIONS**

Semester	Title of paper	Hours	Marks			Credits
			Int.	Ext.	Total	
I	Part – I Tamil	6	25	75	100	3
	Part – II English	6	25	75	100	3
	Part – III :					
	Core – I Programming in C	5	25	75	100	5
	Core –II Programming Lab I – ‘C’	5	40	60	100	3
	Allied - Digital Electronics	5	25	75	100	5
	Part – IV					
Skill Based I – Communicative English	2	25	75	100	2	
Value Education – Yoga & Meditation	1					-
	<b>Total</b>	<b>30</b>			<b>600</b>	<b>21</b>
II	Part – I Tamil	6	25	75	100	3
	Part – II English	6	25	75	100	3
	Part – III					
	Core III – Object Oriented Programming with C++	4	25	75	100	3
	Core –IV Data Structure	4	25	75	100	3
	Core-V Programming Lab II-C++ with Data Structures	3	40	60	100	2
	Allied – Principles of Management	4	25	75	100	5
	Part – IV					
	Skill Based II Programming Lab III-Office Automation	2	40	60	100	2
Value Education-Yoga Practical’s	1	25	75	100	2	
	<b>Total</b>	<b>30</b>			<b>800</b>	<b>23</b>

Semester	Title of paper	Hours	Marks			Credits
			Int.	Ext.	Total	
III	Part – III					
	Core VI – Relational Database Management System	6	25	75	100	4
	Core VII - Computer Organization and Architecture	5	25	75	100	3
	Core VIII-Programming Lab IV Web Technology	5	40	60	100	4
	Core IX – Programming Lab V - RDBMS	5	40	60	100	3
	Allied - Resource Management Techniques	5	25	75	100	5
	Part- IV					
	Skill Based III – Entrepreneurship Development	2	25	75	100	2
	Non Major Elective I – Principles of Information Technology	2	25	75	100	2
	<b>Total</b>	<b>30</b>			<b>700</b>	<b>23</b>
IV	Part – III					
	Core X - Java Programming	6	25	75	100	4
	Core XI – Business Accounting	6	25	75	100	4
	Core XII - Operating System	6	25	75	100	4
	Core XIII – Programming Lab VI - Java	5	40	60	100	3
	Allied - Programming Lab VII - Tally	5	40	60	100	5
	Part IV					
	Skill Based IV– Soft Skills	2	25	75	100	2
	Extension Activities					1
	<b>Total</b>	<b>30</b>			<b>600</b>	<b>23</b>

Semester	Title of paper	Hours	Marks			Credits	
			Int.	Ext.	Total		
V	Part – III						
	Core XIV – Computer Networks	6	25	75	100	5	
	Core XV – Visual Programming	5	25	75	100	3	
	Core XVI – Programming Lab VIII – Visual Programming	5	40	60	100	5	
	Elective I	6	25	75	100	5	
	Elective II	6	25	75	100	5	
	Part – IV						
	Skill Based V - Career Guidance	2	25	75	100	2	
	<b>Total</b>	<b>30</b>			<b>600</b>	<b>25</b>	
VI	Part – III						
	Core XVII – Computer Graphics and Multimedia	6	25	75	100	5	
	Core XVIII – Software Engineering	6	25	75	100	4	
	Core XIX – VB.Net with Mini Project	6	40	60	100	5	
	Elective III	6	25	75	100	5	
		Part – IV					
	Skill Based VI – Programming Lab IX – Multimedia Lab	2	25	75	100	2	
	Environmental studies	2	25	75	100	2	
	Non Major Elective II – Internet and Web Browsing	2	25	75	100	2	
	<b>Total</b>	<b>30</b>			<b>700</b>	<b>25</b>	

**Total Marks : 4000**

**Total Credits of U.G : 140**

**Electives (Colleges can choose any one of the paper as electives)**

**Elective I**

1. Computer Oriented Numerical Methods
2. Client Server Computing
3. PC Maintenance and Trouble shooting

**Elective II**

1. System Programming
2. Internet and E-Commerce
3. Digital Image Processing

**Elective III**

1. Data Mining and Warehousing
2. Mobile Communications
3. Principles of Information Technologies

**Extra Credit Papers**

1. Internet and Web browsing
2. Incorporation Of Current Trends in IT

**CORE I**  
**PROGRAMMING IN C**

**Hours : 5**

**Semester : I**  
**Credits : 5**

**Objectives:**

1. To learn about C Programming Language
  2. To discuss the various concepts of C Language
  3. To Develop Programming Skills in writing Simple Programs.
- 

**UNIT I**

Features – Declarations – Assignments and Variables – Integers – Arithmetic Expressions – More Data Types – Relational and Logical Operations – Printf and Scanf.

**UNIT II**

Control Structures : If and If... Else If statements – While and Do... While Statements- For Loop– Escape sequences – Control Characters – Conversion Specifications.

**UNIT III**

Arrays – Strings – Character Arrays – Break and Continue – Conditional Expressions – Multi Dimensional Array - String and String functions – Static and Auto classes – Printf, Strcpy, Malloc, Sizeof and Strcmp.

**UNIT IV**

Functions : User Defined Functions – Local and Global Variables – Parameters – Boolean Functions.

Pointers : Pointers and Direction Pointers – Address Operator – Array and Pointers.

Structures: Concepts – Initialization – Tag – Pointers to structures – Period and arrow Operators.



## **UNIT V**

Introduction – Defining and Opening a File – Closing a file – Input/output Operations on Files – Error Handling During I/O Operations – Random Access to Files – Command Line Arguments

### **Text Books**

1. E.Balagurusamy, Programming in ANSI C by Tata McGraw Hill Publishing Company, 2007 - 4<sup>th</sup> Edition.

### **Reference Book**

1. Gottfried, Programming with C. Schaum's Outline Series, Tata McGraw Hill Publishing Company, 2006 – 2<sup>nd</sup> Edition.
2. Yashavant P.Kanetkar, Let us C, BPB Publications, 2004 – 5<sup>th</sup> Edition.

## CORE II LAB I

### C PROGRAMMING LAB

#### PROGRAMMING LIST

**Hours : 5**

**Semester : I**

**Credits : 3**

1. a) To find Sum of Digits of a number.  
b) To reverse a given Digits.
2. Number checking.
3. a) prime no of series  
b) Armstrong no series
4. Matrix manipulation and transpose of a matrix.
5. Palindrome using string
6. String concatenation
7. Count no.of words, character and lines.
8. Standard deviation.
9. Fibonacci using recursion.
10. Swapping using pointers.
11. To prepare student Mark list using Structure.
12. To prepare EB Bill using Files.

**CORE II**  
**DIGITAL ELECTRONICS**

**Hours : 5**

**Semester : I**  
**Credits : 5**

**Objectives:**

1. To give basic knowledge on Computer Fundamentals and digital Principals.
  2. To give knowledge on Digital Circuits
- 

**UNIT I**

Introduction to computer – Classification of Digital Computer System – Anatomy of a digital computer –Memory Units – Auxiliary storage devices – Input devices – Output devices .

**UNIT II**

Number Systems: Binary – Octal – Decimal – Hexadecimal Number System. Conversion: Decimal to Binary – Hexa Decimal to Binary – Hexa Decimal to octal & Vice versa.

**UNIT III**

Arithmetic Operation: Binary Arithmetic operation – 1's & 2's Complement. Boolean algebra – Boolean Simplification – k map – Sum of Product method – Logic gates.

**UNIT IV**

Arithmetic And Combinational Circuits: Half Adder – Full Adder – Half Subtractor & Full Subtractor – Multiplexer and Demultiplexer.

**UNIT V**

Sequential Circuits: Flip-flops RS, JK, D, T Flip-flop – Synchronous & Asynchronous Counters – UP/Down counters. Shift Register: Serial In – Serial out – Parallel in – Parallel out.

### **Text Books**

1. Alexis Leon, Mathews Leon, Fundamentals of Information Technology -Unit I
2. S.Salivahanan and S.Arivazhagan, Digital Circuits and Design by Vikas Publishing House Pvt. Ltd. New Delhi, 2000. Unit II – Unit V.

### **Reference Books**

1. Malvino and Leech, Digital Principles and Applications by TMH 1991.
2. V.K.Puri, Digital electronics by TMH, 1997.

**SKILL BASED COURSE I**  
**COMMUNICATIVE ENGLISH**

**Hours : 2**

**Semester : I**

**Credits : 2**

**UNIT I**

Listening skills: Listening to the passage read and answering the questions based on it.

Reading skills: Reading passages in English with correct pronunciation.

**UNIT II**

**Speaking skills:**

Introducing self & Others

Short dialogues using certain expressions

Framing verbal questions

Personal Interviews

Narrating daily routine

Guiding new comers to a spot

**UNIT III**

**Writing skills:**

Narrating personal experiences

Describing things/personality/place

Vote of thanks & welcome address

Importance of English

## **CORE IV**

### **OBJECT ORIENTED PROGRAMMING WITH C++**

**Hours : 4**

**Semester : II**

**Credits : 3**

#### **Objectives:**

1. To Discuss OOPs concepts.
  2. To deal with I/O facilities, Control Structures which are important for a structured programming language
  3. To discuss Structure and Union
  4. To Develop programming skills in writing simple programs.
- 

#### **UNIT I**

Principles of OOPS: OOPS Paradigm – Basic Concepts of OOP – Benefits of OOP – Object Oriented Languages – Applications of OOP.

Introduction to C++: Tokens, Keywords, Identifier, variables, Operators, Manipulators, Expressions and Control Structures in C++

#### **UNIT II**

Functions in C++ - Main function – Function Prototyping – Call by reference – Function Overloading – Friend and Virtual Functions.

#### **UNIT III**

Classes and Objects – Constructors and Destructors – Operator Overloading – Type Conversion.

#### **UNIT IV**

Inheritance – Single Inheritance – Multiple Inheritance - Multilevel Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Pointers – Virtual Functions – Polymorphism – Managing Console I/O Operations.

## **UNIT V**

Working with Files – Classes for File Stream operations – Opening and Closing a file – End – of – file detection – File pointers – Updating a file – Error handling during file operations – Command line arguments.

### **Text Book**

1. E.Balaguruswamy, Object Oriented Programming with C++, Tata McGraw Hill, New Delhi 2002.

### **Reference book**

1. Yashavant P.Kanitkar, Let Us C++ , BPB publications

**CORE V**  
**DATA STRUCTURES**

**Hours : 4**

**Semester : II**

**Credits : 3**

**Objectives :**

To Know About

1. Basic terminology, Notations and Operators.
  2. Stack, Queue, Linked list ,Tree and Graph.
  3. Data Structures representation in Memory, Operators and Applications.
- 

**UNIT I**

Overview – Sparks – How to create Programs – How to Analyze Programs. Arrays:  
Ordered Lists – Sparse Matrices – Representation of Arrays.

**UNIT II**

Stacks and Queues: Fundamentals – A Mazing problem – Evaluation of Expression –  
Multiple Stacks and Queues.

**UNIT III**

Linked Lists: Singly Linked Lists – Linked Stacks and Queues – Doubly Linked Lists –  
Storage management – Garbage collection and Compaction.

**UNIT IV**



Trees: Basic Terminology – Binary Trees – Binary Tree Representation – Binary Tree Traversal – More on Binary Trees – Threaded Binary Trees – Binary Tree Representation of Trees.

## **UNIT V**

Graphs: Terminology and Representation – Traversals, connected components and Spanning Trees, Shortest paths – Activity Networks and Critical paths.

### **Text Book**

1. Ellis Horowitz, Sartaj Sahni, Fundamentals of Data Structures, Galgotia Publications, 1998.

### **Reference Book**

1. Ashok Kamthane, Data Structures using C++

**CORE-VI**

**PROGRAMMING LAB II - C++ WITH DATA STRUCTURE LAB**

**Hours : 3**

**Semester : II**

**Credits : 2**

1. To perform Fibonacci Series using constructor.
2. To perform Sum of Two Values using Operator Overloading.
3. To perform the Arithmetic Operation using Inline Function.
4. To Swap Two Values between Two class Object using Friend Function.
5. To overload Unary and Binary operation using Switch Case
6. To process Student mark list using Multiple Inheritance.
7. To calculate Inventory control using Files.
8. Stack operation.
9. Queue operation.
10. Tree traversal.
11. Linked list.
12. Shortest path.

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**ALLIED**  
**PRINCIPLES OF MANAGEMENT**

**Hours : 4**

**Semester : II**  
**Credits : 5**

**UNIT I**

**Business Management - An Introduction**

Meaning & definition – principles of management – why principles of management – management and administration – Is management an art and science? – Management as an art – management as a science – Is management as a profession? - universality of management – arguments in favour of universality – arguments against universality- function of management – planning – organizing – staffing – directing – controlling – levels of management – three levels of management.

**History of Management Thought**

Pioneers of management thought – stages in the history – Approaches – contribution of leading thinkers – F.W. Taylor – Scientific management – meaning and definition – Features and Objectives – Henry Fayol – other contribution to management thought.

**UNIT II**

**Planning – Nature and Process of Planning**

Meaning and definition – nature of planning – objectives – importance – advantages – limitation – kinds – Essentials of a sound plan – process of planning – methods of planning – objectives – policies – rules – procedures – programmes - budgets – strategies – making planning effective – business forecasting – relationship between planning and forecasting – limitations.

**Decision Making**

Meaning of decision making – definition of decision making - characteristics of decision making – importance of decision making in management – process of decision making – various types of managerial decision – administrative problems in decision making.

**Management by Objectives (M.B.O)**

Definition of M.B.O – principles of M.B.O – Establishment of objectives – performance – Appraisal of performance - Benefits of M.B.O – weaknesses of M.B.O.

## **UNIT III**

### **Organizing – Principles of Organization**

Introduction – Meaning and Definition – Features – Principles of Organization – Process of Organization – Merits of Organization – Consequences of Poor Organization.

### **Organizational Structure**

Introduction – Line or Military Organization – Merits – Demerits – Functional Organization – Nature – Foreman in Office Division – Foreman in the Factory Division – Merits – Demerits – line Vs. Functional Systems – Line and Staff Organization – Nature – Line and Staff Vs. Functional Organization – Line and Functional Staff System – Committee Organization – Meaning – Merits – Demerits – Conditions for Satisfactory Functioning of Committees.

Organizational Structure – Organizational Chart – Vertical Chart – Horizontal Chart – Circular Chart – Benefits or Organizational Chart – Limitations of Organizational Chart – Organizational Manuals – Types of Manuals – Informal Organizations – Meaning and Nature – Functions – Benefits of Informal Organization – Dangers.

### **Delegation of Authority**

Responsibility – Authority – Meaning of Authority – Nature and Source of Authority – Accountability – Meaning and Definition – Characteristics of Accountability – Process of Delegation – Principles of Delegation – Obstacles to Delegation – How to Secure better Delegation – Benefits of Delegation – Decentralization of Authority – Meaning and Definition – Delegation Vs. Decentralization – Benefits and Difficulties of Decentralization – Centralization – Advantages and Disadvantages.

## **UNIT IV**

### **Motivation and Discipline**

Meaning and Definition – Characteristics – Theories of Motivation – Maslow's Need Priority Theory.

### **Leadership**

Meaning and Definition – Characteristics of Leadership – Functions of a Leader – Leadership Styles – Autocratic Style – Democratic Style – Laissez Fair Style – Theories of Leadership.

### **Supervision**

Functions of a Supervisor – Problems of Supervision – Requirements of a Effective Supervision.

## **UNIT V**

### **Communication**

Meaning and Definition – Nature – Principles – Benefits – Elements – Importance of communication in management – channels or types – barriers to communication – guidelines for ensuring effective communication.

### **Control**

Definition – characteristics of control – benefits of control – steps in controlling – effective control.

## **TEXT BOOK**

1. S.Kathiresan and Dr.V.Radha , Principles of Management

## **SKILL BASED COURSE II**

### **PROGRAMMING LAB III OFFICE AUTOMATION**

**Hours : 2**

**Semester : II**

**Credits : 2**

#### **List of Programs**

##### **MS – Word**

1. Formatting the Text
2. Macro Creation
3. Table Creation
4. Mail Merge

##### **MS - Excel**

5. Employee Payroll
6. Inventory Control
7. Chart Creation using Excel

##### **MS - Access**

8. Students Mark List
9. Employee Payroll
10. Form Creation

##### **MS – PowerPoint**

11. Scenery Creation
12. Creating Presentation using Wizard
13. Slide show on College Courses
14. Creation Charts using Power Point

## **CORE VI**

### **RELATIONAL DATABASE MANAGEMENT SYSTEM**

**Semester : III**

**Hours : 6**

**Credits : 5**

#### **UNIT I**

Introduction: Purpose of Database System – View of Data – Data Models – Database Languages – Transaction Management – Storage Management – Database Administrator – Database Users – Overall System Structure.

#### **UNIT II**

Entity – Relationship Model: Basic Concepts – Design Issues – Mapping cardinalities – Keys – E-R Diagrams – Weak entity sets – Extended E-R feature – Design of an E-R Database scheme – Reduction of an E-R scheme to Table.

#### **UNIT III**

Relational Model: Structure of Relational Database – Relational Algebra – The Tuple Relational Calculus – The Domain Relational Calculus – Extended Relational – Algebra Operations – Modifications of the Database – Views. Integrity Constraints.

#### **UNIT IV**

SQL Commands – DDL commands – DML commands – DCL commands

#### **UNIT V**

PL/SQL - Functions – Triggers – Procedures.

#### **Text Book**

1. Abraham Silberschtz, Henry F.Horth S.Sundershan Database System Concepts by McGRAW Hill International Editions, 1997, 3<sup>rd</sup> Edition.

**CORE VII**  
**COMPUTER ORGANIZATION AND ARCHITECTURE**

**Hours : 5**

**Semester : III**

**Credits : 3**

**Objectives :**

1. To give the basics of computer architecture
  2. To discuss input – output organization
  3. To learn about micro processor and its architecture
- 

**UNIT I**

**Basic Structure of Computer Hardware and Software**

Functional Units-Basic Operational Concepts-Bus Structures-Addressing Modes.

**The Processing Unit**

Some fundamentals concepts: Fetching a word from memory - storing a word in a memory-register transfers - Performing an arithmetic or Logic Operation.

**UNIT II**

**Input-Output Organization**

Accessing I/O device, Interrupts: Enabling and Disabling Interrupts-Handling Multiple Devices-Exceptions-Direct Memory Access-I/O Hardware.

**UNIT III**

**The Memory**

Internal Organization of Memory Chips-Static Memories-Dynamic Memories-Read only Memories-Cache Memories: Mapping functions-Virtual Memories.



## **UNIT IV**

### **Pipelining**

Basic Concepts: Role of Cache Memories-Instruction Queue-Branching: Delayed Branch Prediction-Multiple Execution Units.

## **UNIT V**

### **Microprocessor**

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

### **Text Book**

1. Vcarl Hamacher,Zronko G Vrancic, Software G.Zaky-Computer Oraganization,McGraw Hill publication,Fourth Edition,1996.
2. Goanger, Computer System Architecture

### **Reference book**

1. Morris Mano, Computer system Architecture by

**CORE VIII LAB IV**

**PROGRAMMING LAB IV - WEB TECHNOLOGY**

**Hours : 5**

**Semester: 3**

**Credits : 4**

**PROGRAMMING LIST**

1. Table Creation
2. List Creation
3. Frames Creation
4. Application form creation
5. Create a web site for College
6. Create a Web Site for Murugan Temple
7. Employee Details
8. Student Table
9. Cascading Style-Sheet
10. Leave Letter
11. Homepage Creation

**CORE IX****PROGRAMMING LAB V      RDBMS LAB****Hours : 5****Credits : 3**

1. DDL, DML, DCL Commands
2. Logical, Comparison, Conjunctive & Arithmetic Operators.
3. **Retrieving rows with Characters functions:**
  - i)      CONCAT (Concatenation)
  - ii)     REPLACE
  - iii)    SUBSTR (Substring)
  - iv)    LENGTH
4. **Retrieving rows with Aggregate functions:**
  - i)      GROUP BY
  - ii)     HAVING
5. **Retrieving rows with date functions & number function:**
  - i)      SYSDATE
  - ii)     ABS, FLOOR, CEIL, ROUND, POWER
6. **JOINS:**
  - i)      Union, Intersection & Union all
  - ii)     Simple Join
  - iii)    Self Join
  - iv)    Outer Join
7. **CONSTRAINTS:**
  - i)      Domain Integrity (Not Null, Check)
  - ii)     Entity Integrity (Unique & Primary Key)
  - iii)    Referential Integrity (Foreign Key)
8. **VIEW: PL/SQL**
9. PL/SQL Programs with Control Structures
10. PL/SQL Programs with Exception Handling
11. PL/SQL Programs with Cursors
12. Creating & Calling Procedures
13. Creating & Calling Functions
14. Creating & Calling Packages.
15. Triggers

**ALLIED**  
**RESOURCE MANAGEMENT TECHNIQUES**

**Semester : III**

**Hours : 5**

**Credits : 5**

**UNIT I**

Development of OR-Definition of OR - Modeling - Characteristics and Phases - Tools, Techniques and methods - Scope of OR.

**UNIT II**

Linear Programming problem - Formulation-Stack Surplus Variables - Graphical Solution of LPP.

**UNIT III**

Simplex method - Computational Procedure - Artificial Variable Techniques - Two Phase Method - Duality.

**UNIT IV**

Mathematical Formulation of Assignment Problem - Method of solving the Assignment Problem. Mathematical Formulation of Transportation problem - Initial Feasible solution- Optimal Solution - Degeneracy in TP - Unbalanced TP.

**UNIT V**

PERT Network and Timing Estimates - Critical Path Method(CPM)

**Text Book**

1.J.K.Sharma, "Operations Research"-Theory and Applications, McMillan Publishers.

**NON-MAJOR ELECTIVE – I**  
**PRINCIPLES OF INFORMATION TECHNOLOGY**

**Semester : III**

**Hours : 2**

**Credits : 2**

**Objectives:**

1. To know the various aspects of an information Technology.
  2. To understand the different phases of evaluation of information Technology.
- 

**UNIT I**

Introduction : Information Systems – Computers in Business & Industry –  
Computers in Home.

**UNIT II**

Computers in Education & Training - Computers in Entertainment , Science,  
Medicine & Engineering

**UNIT III**

Internet & World Wide Web : Introduction – the Web – Getting connected to the  
Web – Browsing the Web – Locating Information on the Web – Web Multimedia.

**UNIT IV**

Multimedia : Introduction to Multimedia – Multimedia Tools

**UNIT V**

New technologies in Information Technology : E-commerce – Hypermedia –  
Geographic Information System.

## **TEXT BOOK**

1. Alexis Leon, Mathews Leon, Fundamentals of Information Technology, Published by  
Leon Vikas

**CORE X**  
**JAVA PROGRAMMING**

**Hours : 6**

**Semester : IV**  
**Credits : 4**

**Objectives:**

1. To inculcate knowledge on java programming concepts.
  2. To create wide range of applications and applets using Java.
- 

**UNIT I**

Introduction-Simple Java Programming – Java Program Structure - Java Tokens, Constants, Variables, Data Types - Java Statements - Implementing a Java Program - Java Virtual Machine - Command Line Arguments.

**UNIT II**

Classes, Objects And Methods: Introduction-Defining a Class- Static Members-Overriding Methods-Final Variables and Methods-Final Classes-Finalizer Methods-Abstract Methods and Classes –Visibility Control.

**UNIT III**

Interfaces: Introduction-Defining Interfaces-Extending Interfaces - Implementing Interfaces-Accessing Interface Variables.

Packages : Java API Packages-Using System Packages-Creating Packages-Accessing a Package-Using a Packages-Adding a Class to Package-Hiding Classes.

**UNIT IV**

Multithreading Programming: Creating Thread-Extending the Thread Class-Stopping and Blocking a Thread, Life Cycle of a Thread-Thread Exception-Thread Priority-Synchronization-Implementing the “Runnable Interface”-Managing Error and Exceptions.

## **UNIT V**

Applet Programming: Introduction-Preparing to Write Applets-Applet Life Cycle-Designing a web page-Passing Parameters to Applets.

Graphics Programming: The Graphics Class-Lines and Rectangles-Circle and Ellipses-Line Graphics-Using Control Loop in Applets.

### **Text book**

1. E.Balagurusamy, Programming with JAVA

### **Reference Book**

1. Herbert Schildt, The complete Reference JAVA 2



**CORE XI**  
**BUSINESS ACCOUNTING**

**Hours : 6**

**Semester : IV**

**Credits : 4**

**UNIT I**

Accounting –Definition and functions-Accounting conventions concepts-system of accounting –Rules of double –entry system of book keeping-preparation of journal and ledger accounting

**UNIT II**

Subsidiary books - Purchase book - sales book - Purchase return book - Sales return book – Bills payable, Bills receivable.

**UNIT III**

Cash book – Single, Double, Triple column cash book.

**UNIT IV**

Preparation of trial balance - Final accounting – trading, profit & Loss accounting of balance sheet with simple adjustments.

**UNIT V**

Budget preparation of Cash Budget - Flexible budget.

**Text books**

1. K.L.Nagarajan,N.Vinayakam,P.L.Mani, Principles of Accountancy,  
Eurasia PublicationHouse(Pvt)Ltd.,New Delhi.

**Reference Book**

1. Srinivasan and Ramachandran , Management Accounting, SriramPublication.

## **CORE XII**

### **OPERATING SYSTEM**

**Semester : III**

**Hours : 6**

**Credits : 4**

**Objectives :**

1. To teach the fundamental aspect of operating system.
  2. To give sufficient knowledge on various system resources.
  3. To know about security and production policies.
- 

#### **UNIT I**

INTRODUCTION : Evolution, types, different views of operating system, Process : Concepts, System Programmer's view Scheduling : Types of scheduler's algorithm and performance evaluation.

#### **UNIT II**

Inter-Process Communication & Synchronization : Need for Synchronization, Semaphores-Message and Implementation issues, Deadlocks : Prevention, avoidance, detection and recovery.

#### **UNIT III**

Memory Management : Static, Dynamic Memory allocation and Segmentation, Paging, Virtual Memory.

File management : Disk Organization, Disk Controller and Driver, Operating system View of the File Management.

#### **UNIT IV**

Security and Production : Security Policies and Mechanisms, Authentication, Cryptography, Worms and Viruses.

## **UNIT V**

Input & Output Programming : I/O Problem, I/O Interfaces, Program Controlled I/O and Interrupt Controlled I/O.

### **Text Book**

1. Operating Systems (Concept and Design)-, 1987, Tata McGraw-Hill INC – 2<sup>nd</sup> Edition (Chapters 1-9,12,13)

### **Reference Book**

1. Hames L.Peterson,Abraham, Operating System Concepts
2. Silberchatz, Peterson and Galvin, Operating System Concepts – Addison Wesley.

## **CORE XIII LAB VI**

### **JAVA PROGRAMMING**

**Hours : 5**

**Semester : IV**

**Credits : 3**

#### **PROGRAMMING LIST**

1. To perform addition of complex numbers using class and objects.
2. To perform multiplication of matrices using class and objects.
3. To perform volume calculation using method overloading.
4. Using command line arguments, test if the given string is palindrome or not.
5. Using multilevel inheritance process student marks.
6. Implement multiple inheritance for payroll processing.
7. Package illustration.
8. To illustrate built-in exceptions (any four).
9. To create multiple threads
  - a. Using Thread class
  - b. Using Runnable interface
10. String manipulation using string methods.
11. Applet – Graphical methods

**ALLIED LAB VII**  
**ACCOUNTING SOFTWARE (TALLY)**

**Semester : IV**

**Hours : 5**

**Credits : 5**

**UNIT I**

Creating of Company-Alteration of company-Creation of ledger account-Group of accounting

**UNIT II**

Voucher entries – Purchase – Sales – Expenses – cash – journal.

**UNIT III**

Preparation of Balance Sheet-Profit and Loss Account - Trading account-Various accounting statements – Alteration - Adjustment.

**UNIT IV**

Stock maintenance - Stock entries-Stock registers - Purchase registers-Sales registers-Godown registers-Reorder level registers

**Programme List**

1. Company Creation & Accounts master creation
2. Voucher Entry ( 2 Programs)
3. Day Book preparation
4. Preparation of Trial Balance
5. Preparation of Final Accounts ( Profit & Loss A/c & Balance Sheet)
6. Stock Group & Stock item creation
7. Making voucher entries with Inventory details (3 programs)

## CORE XIV

### COMPUTER NETWORKS

**Semester : V**

**Hours : 6**

**Credits : 5**

**Objectives:**

1. To impart knowledge on network concepts like layers wireless concepts, transmission and security.
  2. To give knowledge on networking technologies like broadband and Bluetooth.
- 

#### UNIT I

**Introduction:** Uses – Hardware – Software – Reference Models – Examples.

#### UNIT II

**Physical Layer:** Transmission Media – Wireless Transmission – Telephone System – Cellular Radio – Communication Satellites.

#### UNIT III

**Data Link Layer and Multiple Access Layer:** Data Link Layer Design Issues – Elementary data link Protocols – Multiple Access Protocols, Ethernet.

#### UNIT IV

**Network Layer:** Network. layer Design Issues – Routing algorithms – Transport Layer Design Issues – Elements of Transport Layer Protocol.

#### UNIT V

**Application Layer:** Network Security – E-Mail – WWW – Multimedia.

#### Text Book

1. Andrew S. Tanenbawm, Computer Network by PHI, 1996, 3<sup>rd</sup> Edition.

**CORE XV****VISUAL PROGRAMMING****Semester : V****Hours:5****Credits:5****Objectives :**

- To inculcate knowledge on Programming and Project Development using Visual Basic.
- 

**UNIT - I**

Introducing Visual Basic: What is VB? – Event and Event Procedures – Object-related concepts – VB program Development Process – Required Computer Skills – Logical Program Organization -VB Program Components – VB environment – Opening, Saving, Running a VB Project – Getting Help – Sample VB project. Visual Basic Fundamentals: Numeric, String constants – Variables – Data Types and Declarations – Operators and Expressions – Hierarchy of Operations – Inserting Parentheses – Special Rules concerning Numeric Expressions – String Expressions - Assigning Values to Variables – Displaying out – Library Functions – Program Comments. Branching and Looping: Relational operators and Logical Expressions – Branching with If-Then, If-Then-Else blocks – Selection Select Case – Looping with For-Next, Do-Loop, While-Wend – Stop statement.

**UNIT - II**

Visual Basic control Fundamentals: Control tools – Control tool Categories – Working with Controls – Naming Forms and Controls – Assigning Property values to Forms and Controls– Executing commands – Displaying Output – Entering Input Data – Selecting Multiple Features, Exclusive Alternatives, Form from a List - Assigning Properties collectively – Generating Error Messages – Creating timed Events – Scroll Bars.

**UNIT – III**

Menus and Dialog Boxes: Building Drop-Down Menus – Accessing Menu from Keyboard – Menu Enhancements – Submenus – Pop-Up Menus – Dialog Boxes – more about MsgBox Function – The Input Box function. Executing and Debugging a New Project: Syntax errors – Logical errors – Setting Breakpoints – Defining Watch Values – Stepping Through a Program – User-induced Errors – Error-handlers – Generating a Stand alone Executable Program.

**UNIT-IV:**

Procedures: Modules and Procedures – Sub Procedures – Event Procedures – Function Procedures – Scope – Optional Arguments. Arrays: Characteristics – Declarations – Processing – Passing Arrays to Procedures – Dynamic Arrays – Array-related Functions – Control Arrays – Looping with for Each-Next.

**UNIT-V:**

Data Files: Characteristics – Accessing and Saving a File in VB: The Common Dialog Control – Processing a Data file – Sequential Data Files – Random-Access Data files – Binary files.

**TEXTBOOK:**

1. VISUAL BASIC – Byron S. Gottfried, Schaum's Outline series, TMH.

(UNIT-I: Chapters 1, 2 & 3 UNIT II: Chapter 4 UNIT-III: Chapter 5 & 6 UNIT-IV: Chapters 7 & 8 UNIT V: Chapter 9)

**REFERENCE BOOK:**

1. The Complete reference VISUAL BASIC – Noel Jerke, TMH.



**CORE XVI**

**PROGRAMMING LAB VIII - VISUAL PROGRAMMING LAB**

**Semester : V**

**Hours : 4**

**Credits : 3**

- 1.Arithmetic Operations using Functions.
- 2.Objective type Questionnaires
3. Scientific Calculator
- 4.Design a clock
- 5.Menu creation with simple file and Edit Options
6. Changing the font color, size and save the file using common control dialog box and Rich text box.
- 7.Designing a color mixer using basic colors.
- 8.Picture Animation
- 9.Authentication form using List Box.
- 10.Student Mark List using DAO.
- 11.Employee details using ADO.
- 12.Flex grid controls
- 13.To change the shape using Combo box.

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## E 1.1 COMPUTER ORIENTED NUMERICAL METHODS

**Hours : 5**

**Semester : V**  
**Credits : 5**

### UNIT I

#### Computer Arithmetic:

Introduction – Floating point Representation of numbers – Arithmetic Operations with normalization floating point numbers – consequences of normalizers floating point representation of numbers – some pitfalls computing – Error in numbers.

Iterative Methods: Introduction – Beginning iterative method of Successive Bisection, False Position, Newton Raphson – Secant – Successive Approximation Solution of polynomial equation simultaneous non linear equations.

### UNIT II

Solution of Simultaneous algebraic Equations: Introduction – Gauss Elimination – Pivoting – ill conditional equations – refinement of the solution obtained by Gauss Elimination – Gauss Seidal iterative method. Comparison of direct and iterative methods.

### UNIT III

Interpolation: Introduction – Lagrange interpolation – Difference – Tables – Truncation error – in interpolation – spline interpolation.

Least Squares Approximation of Functions : Introduction – Linear regression – polynomial regression – fitting exponential and trigonometric functions.

### UNIT IV

Differentiation and Integration: Introduction – Formulae for numerical differentiation – numerical Integration Simpson's rule Errors – Algorithms – Gaussian Quadrature – Comparison of Integration formulae.

## **UNIT V**

Numerical Solution of Differential Equations: Introduction – Euler’s Method – Taylor Series – Runge-Kutta Methods – Predictor – Corrector – High order differential equation – Comparison of Predictor – Corrector and Runge-Kutta Methods.

### **Text Book :**

1. V.Rajaraman, Computer Oriented Numerical Methods, Prentice Hall of India Limited, 1997 - Chapters: 2,3,4,5,6,7,8,9

**E 1.2 CLIENT SERVER COMPUTING****Semester : V****Hours: 6****Credits : 5****Objectives:**

- To inculcate knowledge on Client / Server concepts
- 

**UNIT I**

Introduction to client/server computing – main frame – centric client/server computing – downsizing and client/server computing – client/server development tools – advantages of client/server computing – connectivity – user productivity reduction in network traffic – faster delivery of systems.

**UNIT II**

Components of client/server applications – the client – the role of the client client services – request for service – dynamic data exchange (DDE) – object linking and embedding (OLE) - Common Object Request Broker Architecture (CORBA)- component of client/server applications.

**UNIT III**

Role of the server – Server functions – network operating systems – Novell Netware – LAN manager – IBM LAN server – Banyan VINES – PC Network file service – server operating systems: Netware, OS/2, Windows NT, Unix –System application Architecture (SAA).

**UNIT IV**

Components of client / server architecture – connectivity – open system interconnect (OSI) – Inter- process communication – communication interface technology – wide area network technology – Client/Server systems development software – platform migration and reengineering of existing of systems – client server development methodology – client server

systems development hardware PC level processing units – Unix Workstation – server hardware – mirrored disk RAID-disk array – CD-ROM-WORM- network interface cards(NIC)

## **UNIT V**

Client/server systems development – service and support – system administration availability – reliability – serviceability – performance – Network management – remote systems management – security – LAN and network management – Client server systems development – training – training advantage of GUI applications – system administrator training – LAN administration – WAN issue – operation system issues – application issues – database administration training – end user training .

### **Text Book**

1. Robert Orfali, Dan Harkey and Jerry Edwards, “Essential Client/server Survival Guide” John Willey and Sons Inc., 1996.
2. Patrick /smith and Steve Guengerich,” Client/Server Computing”, prention Hall of India, Second Edition, 1997.

**E 1.3 PC MAINTENANCE AND TROUBLE SHOOTING****Semester : V****Hours:6****Credits : 5****Objectives :**

1. To know the peripheral of computer.
  2. To do simple trouble shooting techniques.
- 

**UNIT I**

The Basic Microcomputer System – Processor subsystem – 8086 processor – clock generator 8284 - Bus subsystem Bus controller 8288 – Latch 74LS373 – Transceiver 74LS245 – Memory subsystems – Decoder 74LS138 – DMA Controller 8237 – I/O substem – PPI 8255 – PIC 8259 – PIT 8253 – Tips and Trouble Shootings.

**UNIT II**

Inside the IBM PC system unit - \* power supply - cabling and connectors - \*system board functions – system configuration.

**UNIT III**

Peripherals – Memory peripherals - \* Floppy disk drive – working principle – Removal and Installation – Cleaning and preventive maintenance – Floppy disk format – Winchester disk - \*CRT working principle – IBM PC display adapter – printers – interface standards – Modems and Acoustic couplers – Trouble shooting keyboards.

**UNIT IV**

Servicing – Switch Settings – Cabels and connectors – Operation – post – preventive maintenance.

**UNIT V**

Diagnostics and Trouble shooting – Test equipments – Login proble – oscilloscope.

## **Text Book**

1. Stuert M.Asser. Vincent J.Stlgliano, Richard F.Bahrenburg, "Microcomputer servicing practical system and Trouble Shooting", A Bell & Howell Information Company Columbus, 1990.

## E 2.1 SYSTEM PROGRAMMING

**Semester : V**

**Hours: 6**

**Credits : 5**

**Objectives:**

- Enable the student to get sufficient knowledge on various system resources.
- 

### **UNIT I**

Introduction: System Software and Machine Architecture – SIC, CISC – RISC machines.

### **UNIT II**

Assemblers: Basic Assembler Functions – Machine Dependent, Independent Assembler features – Assembler design options.

### **UNIT III**

Loaders and Linkers: Basic Loader functions – Machine Dependent, Independent Loader features – Loader design options.

### **UNIT IV**

Macroprocessors: Basic Macroprocessor functions – Machine Independent Macroprocessor features – Macro processor Design options.

### **UNIT V**

Compiler: Basic Compiler functions – Machine Dependent and Independent compiler features – Compiler Design options.

### **Text Book**

System Software (An Introduction to System Programming) – III Edition – 1997 – Addison Wesley. **Chapters : 1-5**



## **E 2.2 INTERNET & E-COMMERCE**

**Semester : V**

**Hours : 6**

**Credits : 5**

### **Objectives:**

1. To inculcate knowledge on E-Commerce concepts in the present IT world.
  2. To know the Internet basics .
- 

### **UNIT I**

Introduction: Electronic Commerce Frame Work – The anatomy of E-Commerce Applications – Electronic Commerce Consumer Applications – Electronic Commerce Organization Applications – The Network infrastructure for electronic Commerce: Components of the Highway – Network Access Equipment – Global Information Distribution Networks.

### **UNIT II**

The internet as a Network Infrastructure: The Internet Terminology Chronological History of the Internet – NSFNET – Architecture and Components – National Research and Education Network – Globalization of the Academic Internet - The Business of Internet Commercialization: Telco/Cable/Online Companies – National independent ISPs-Regional Level ISPs-Local Level ISPs-Service Provided Connectivity – internet Connectivity Options.

### **UNIT III**

Network Security and Firewalls: Client Server Network Security – Firewalls & Network Security – Date & Message Security – Challenge Response System – Encrypted Documents & Electronic Mail – Electronic Commerce & World Wide Web: Architectural Framework for Electronic Commerce – Technology Behind the Web – Security and the Web – Consumer Oriented Electronic Commerce: Consumer Oriented Applications – Mercantile Models from the consumers Perspective.

## **UNIT IV**

Electronic Payment System: Types of Electronic Payment Systems – Digital Token Based: Electronic Payment Systems Smart Card & Electronic Payment Systems – Credit Card Based Electronic Payment Systems – Risk & Electronic Payment Systems –Designing Electronic Payment Systems – Inter Organizational Commerce & EDI:

Electronic Data Interchange – EDI Applications in Business – EDI – Implementations, MIME< and value Added Networks: EDI Software Implementations – EDI Envelope for Message Transport – Value – Added Networks (VANS) –Internet – Based EDI.

## **UNIT V**

Advertising and marketing on the Internet: The New age of information Based Marketing – Advertising on the Internet – Charting the On –line Marketing Process – Consumer Search and Resource Discovery: Information search and Retrieval – Electronic Commerce Catalogues or Directories – Information Filtering – Consumer Data Interface Emerging Tools – On Demand Education and Digital Copyrights: Computer Based Education on Demand – Software Agents: Characteristics and Properties of Agents – The Technology Behind Software Agents – Applets, Browsers and Software Agents.

### **Text Book**

1.Ravikalakota & Andrew Whinston, “Froniters of Electornic Commerce”, Addison Wesley, 2000.

### **Reference Book**

1.Peter Loshin, & Paul A.Murphy, “Electronic Commerce”, 2<sup>nd</sup> E.d., Jaico Publishing House, 2000.

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## E 2.3 DIGITAL IMAGE PROCESSING

**Semester : V**

**Hours:6**

**Credits : 5**

### UNIT I

What is Digital Image Processing? The Origin of Digital Image Processing – Elements of digital image processing – Steps involved in DIP – Fundamental Steps in DIP – Structure of the Human Eye – Brightness Adaptation and Discrimination – Image Acquisition using a single sensor – Image Acquisition using sensor arrays.

### UNIT II

Basic concepts in image sampling and Quantization – Representing Digital Images – Spatial and Gray level resolution – Zooming and shrinking digital images – Neighbors of a pixel – Adjacency, Connectivity – Regions and Boundaries – Distance Measures, Image Operations on a pixel basis.

### UNIT III

Image Enhancement in Spatial Domain – Gray level transformation – Image Negatives – Log Transformations – Enhancements using arithmetic/logical operations – Image Subtraction – Image Averaging.

### UNIT IV

Image Compression: Coding Redundancy – Inter pixel redundancy – Psycho visual redundancy – Image compression models – The source encoder and decoder – The channel Encoder and Decoder.

### UNIT V

Image Segmentation: Detection of discontinuous – Point detection – Line Detection – Edge Detection – Representation of Images: Chain Codes – Polygonal approximation – Signatures – Boundary segments – Skeletons.

**REFERENCE BOOKS:**

1. Rafael C. Gonzalez & Richard. E. Woods Addison, Digital Image Processing– Wessely publishing Company Inc.(Third Indian Reprint, 2000).

## CORE XVII

### COMPUTER GRAPHICS & MULTIMEDIA

Semester : VI

Hours: 6

Credits : 4

#### Objectives:

1. To offer concepts on basic graphical techniques.
  2. To study about two dimensional transformations.
  3. To introduce basic concepts and various elements of multimedia.
- 

#### UNIT I

Output Primitives: Points and Lines – Line –Drawing Algorithms – Loading frame Buffer – Line function – Circle-Generating algorithms – Ellipse-generating algorithms. Attributes of Output Primitives: Line Attributes – Curve Attributes – Color and Grayscale Levels – Area-fill attributes – Character Attributes.

#### UNIT II

Geometric Transformations: Basic Transformations – Matrix Representations – Composite Transformations – Other Transformations

#### UNIT III

Viewing: The Viewing Pipeline – Viewing Co-ordinate Reference Frame – Window-to-Viewport Co-ordinate Transformation – 2D Viewing Functions – Clipping Operations

#### UNIT IV

Text : Types of Text – Unicode Standard – Font – Insertion of Text – Text Compression – File Formats. Image : Image Types – Seeing Color – Color Models.

#### UNIT V

Audio : Introduction – Acoustics – Nature of Sound Waves – Fundamental characteristics of Sound – Microphone – Amplifier – Loudspeaker – Audio Mixer – Digital Audio Video : Analog Video Camera – Transmission of Video Signals – Video Signal Formats – Television Broadcasting Standards – PC Video – Video File Formats and CODECs – Video Editing – Video Editing Software.

**Text Books:**

1. Computer Graphics – Donald Hearn, M.Pauline Baker, 2<sup>nd</sup> Edition
2. Principles of Multimedia – Rajan Parekh, 2007, TMH

**CORE XIV**  
**SOFTWARE ENGINEERING**

**Hours : 6**

**Semester : VI**  
**Credits : 4**

**Objectives:**

1. To know the concept of computer based system and products
  2. To present the role of software, system analysis, design concepts, testing methods and strategies.
- 

**UNIT I**

The Evolving Role of Software - What is Software Engineering - The Changing Nature of Software - Software Myths - Some Terminologies - Software Life Cycle Models: Build and Fix Model - Evolutionary Process Models - Selection of a Life Cycle Model.

**UNIT II**

Requirements: Analysis and Specifications: Type of Requirements - Feasibility Studies - Requirements Validation.

**UNIT III**

Project Planning: Size Estimation - The Constructive Cost Model (COCOMO) - The Putnam Resource Allocation Model.

**UNIT IV**

Soft Design: What is Design - Function Oriented Design - Software Testing: A Strategic Approach to Software Testing - What is Testing - Functional Testing - Structural Testing - Levels of Testing - Validation Testing.

## **UNIT V**

What is Software Maintenance - Estimation of Maintenance Costs .

### **Text Book:**

1. K.K.Agarwal, Software Engineering

### **Reference Book**

1. Software Engineering: A Practical approach by Roger S.Pressman – McGraw Hill – 1987 Edition.



**CORE XIX**

**PROGRAMMING LAB IX - VB .NET PRPGRAMMING**

**Hours : 6**

**Semester : VI**

**Credits : 5**

**PROGRAM LIST**

1. Write a program to find a grade pf students.
2. Write a program to find factorial of given number using functions.
3. Write a program to arrange names in alphabetical order.
4. Write a program to display the user information.(personal details)
5. Calculator.
6. Notepad
7. Employee Details.
8. Hospital Management system.
9. Sales Transaction System.
10. News Paper Vendor Details.

### **E 3.1 DATA MINING AND WAREHOUSING**

**Semester : VI**

**Hours: 6**

**Credits: 5**

**Objectives:**

1. To present fundamentals of data warehousing.
  2. To inculcate knowledge on Data mining Concepts.
  3. To have sound knowledge on Data Mining Techniques.
- 

#### **UNIT I**

**Data Warehousing** : Introduction – Definition – Multidimensional Data Model OLAP operations – Warehouse Schema – Architecture – Metadata – OLAP Engine backend process.

#### **UNIT II**

Data Mining – Definition – Comparison with other fields – Techniques – Issues Application Areas Association rules – Methods – A Priori algorithm – Partition Algorithm – Prince Search Algorithm – Border Algorithm – Generalized association rule with Item constraints.

#### **UNIT III**

Clustering Techniques – Paradigms – Algorithms – CLARA – CLAEAN Hierarchical clustering – DBSCAN – Categorical Clustering Algorithms – STIRR Decision Trees – Tree construction principle – Best split – Splitting indices – criteria algorithms – CART – ID3.

#### **UNIT IV**

Other Techniques – Neural Network – Genetic Algorithm – Rough Sets – support vector machines.

#### **UNIT V**

Web Mining – Introduction – Web content mining – Web structure mining – web usage mining – text mining – hierarchy of categories – text clustering.

**Text Book:**

1. Arun K Pujari, Data Mining techniques – Universities Press – 2001.

**Reference book**

1. Jaiwei Han, Micheline Kamber, "Data Mining : Concepts and Techniques"
2. Pang-Ning Tan, Michael Steinbach, Vipin Kumar, "Introduction to Data Mining" 2007.

## **E 3.2 MOBILE COMPUTING**

**Semester : VI**

**Hours: 6**

**Credits: 5**

### **Objectives :**

1. To know about the information access device.
  2. To impart knowledge on Internet protocols and formats.
  3. To offer concepts of wireless Technology.
- 

### **UNIT I**

Information Access Devices – Handheld Computers – Palm OS – Based Devices  
Windows CE – Based Handheld Computers – EPOC Based Handheld Computers – S Notebooks  
– Phones – Cellular Phones – Data transmission capabilities – Smart Phones Screen Phones.

### **UNIT II**

Smart Identification – Smart Cards – Smart Labels – Smart Tokens – Embedded Controls  
– Smart Sensors and Actuators – Smart Appliances and home networking – Automotive  
computing.

### **UNIT III**

Internet Protocols and Formats – HTTP – HTML – XML – Xforms – Mobile Internet –  
WAP 1.1 Architecture – Wireless Application Environment 1.1 – WAP 2.0 Architecture – i-  
node.

### **UNIT IV**

Voice – Voice Technology Trends – Voice on the web – Standardization.

### **UNIT V**

Connectivity – Wireless Wide Area Networks – Short Range Wireless Communication.

## **TEXT BOOK**

1. Uwe Hansmann, Lothar Merk, Martin S.Nicklous, Thomas Stober, Principles of Mobile Computing, Springer – Second Edition – 2003.

**E 3.3 PRINCIPLES OF INFORMATION TECHNOLOGY****Semester : VI****Hours: 6****Credits: 5****Objectives:**

- To know the various aspects of information Technology.
  - Understand the concepts and technology involved in the field of information Technology.
- 

**UNIT I**

Information Technology Today – introduction to IT – information systems –software and data – IT in business and industries – applications area of IT – computers in hiding – Global Positioning System. Information Technology in Business – Corporate computing – transaction processing – information tools for management – marketing, advertising and sales – design, production and manufacturing – business on Internet.

**UNIT II**

The Computer System and CPU – Types of Computers – Anatomy of computer-foundations of modern technology – microprocessor – path of progress – microprocessor fabrication – types of memory – buses – communication with peripherals. Input and Output-Input and Output devices – pointing devices – foundations of modern output – display screen – printers.

**UNIT III**

Secondary Storage – foundations of modern storage – Storage media-media – floppy disk, hard disk drive and optical disk – increasing data storage capacity – backing up your data – Software – user interface – applications programs – operating system – introduction, types, file management and utilities – document – centric computing – major software issues – network computing.

## **UNIT IV**

Internet and World Wide Web – Introduction to World Wide Web and Web – getting connected to web – browsing web – locating information on Web – Web multimedia Communications – electronic Web – network applications – foundations of modern networks – Local Area Network – Introduction, architecture and system – introduction to Wide Area Network – link between networks – devices, media and protocols – dial – up access – high bandwidth personal connections.

## **UNIT V**

Multimedia – an introduction – tools of multimedia – paint and draw applications, graphic effects and techniques, sounds and music, video and multimedia authoring tools – delivering multimedia –multimedia on the web. Personal, Social and Ethical Issues: Computers and youth health – viruses – Computer crime – cryptography – burning issue.

### **Text book**

1. “Information Technology” – The Breaking Wave, Dennis P.Curtin, Kim Foley, Kunal Sen & Cathleen Morin, Tata McGraw Hill Ed., 1999.  
Chapters: 1,2,3,4,5,6,9,10,11& 13.

### **Reference Books**

- 1.Fundamentals of Computers, Rajaraman V., 2/e Prentice Hall of India, New Mumbai, 1999.
- 2.Fundamentals of Information Technology. Alex Leon, Leon Techno publications, Chennai, 1999.
- 3.Understanding and Using Internet, Subhash Mehta, Global Business Press, New Mumbai, 1996.

**SKILL BASED V**

**PROGRAMMING LAB IX - MULTIMEDIA LAB**

**Semester : VI**

**Hours : 2**

**Credits : 2**

1. Scenery Creation.
2. Greeting Card Design.
3. Visiting Card Design.
4. Motion Tweening.
5. Shape Tweening.
6. Animation Using Mask Layer.
7. Animation Using Guide Layer.
8. Transforming Object Using Buttons.
9. Screen Creation.
10. Greeting Design & Star Blinking.



## **SKILL BASED IV**

### **SOFT SKILLS**

**Semester : VI**

**Hours : 2**

**Credits : 2**

#### **UNIT I : Behavioural skill**

1. Attitude and Altitude
2. Lateral Thinking
3. Time is money
4. Are Leaders born or made?
5. Team Building
6. Interpersonal Skills

#### **UNIT II : Business Communication**

1. Business Communication in English
2. Presentation Skills
3. Business Correspondence

#### **UNIT III : Group Dynamics**

1. Interviews
2. Group Dynamics

#### **UNIT IV : Internet and Soft Skills**

1. Internet for Job Seekers

#### **Text Book**

1. G.Ravichandran, S.P.Benjamin Elango and L.Arokiam, "Success through Soft Skills",  
ICT, 2007

## **SOFT SKILLS**

### **Model Question Paper**

#### **Section A**

I Answer all the questions :

1. What is meant by aptitude?
2. How is time wasted?
3. Define inter-personal skills.
4. Write briefly on 'listening'.
5. How can a presentation be made effective?
6. Comment on e-mail etiquette.
7. Why is an interview conducted ?
8. What is meant by a 'Stress interview'?
9. What are the skills tested in 'Group Dynamics'?
10. Write briefly on the 'Internet'.

#### **Section B**

II Answer the following briefly :

11. a. Explain 'Lateral thinking ' with examples.

Or

- b. Write a short note on 'aggressive people'.

12. a. Show how one can be an effective writer.

Or

- b. Comment on the use of telephones.

13. a. Present your curriculum vitae.

Or

- b. Write on the do's before the interview.

**NON-MAJOR ELECTIVE - II**  
**INTERNET AND WEB BROWSING**

**Semester : VI**

**Hours:2**

**Credits: 2**

**Objectives:**

1. To know the internet basics.
  2. To search the website and browse.
  3. To send and receive e-mail.
- 

**UNIT I**

INTRODUCTION: History of computer – Types of computer – Classification of computers – Applications of computers.

**UNIT II**

INTERNET BASICS: World Wide Web – Search Engines – Web Browsers.

**UNIT III**

E-Mail: Creation of E-Mail – Sending and Receiving E-Mail – Attachments.

**UNIT IV**

Searching the web – Downloading: Text and Pictures.

**UNIT V**

HTML: Introduction – Structure of a HTML – HTML Tags.

**TEXT BOOK**

1. Young Kaiseng, Using the internet the easy way – Minerva publications , reprint 2003

**PG DEPARTMENT OF COMPUTER SCIENCE**

**Extra Credit Paper I**

**INTERNET AND WEB BROWSING**

**Credits:2**

**Objectives:**

1. To know the internet basics
  2. To search the website and browse
  3. To send and receive e-mail.
- 

**UNIT I**

**INTRODUCTION:** History of computer – Types of computer – Classification of computers – Applications of computers.

**UNIT II**

**INTERNET BASICS:** World Wide Web – Search Engines – Web Browsers.

**UNIT III**

**E-Mail:** Creation of E-Mail – Sending and Receiving E-Mail – Attachments.

**UNIT IV**

Searching the web – Downloading: Text and Pictures.

**UNIT V**

**HTML:** Introduction – Structure of a HTML – HTML Tags.

**TEXT BOOK**

1. Yaung Kaiseng, Using the internet the easy way – Minerva publications , reprint 2003

**PG DEPARTMENT OF COMPUTER SCIENCE**

**Extra Credit Paper II**

**INCORPORATION OF CURRENT TRENDS IN INFORMATION  
TECHNOLOGY**

**Credits:2**

**Objectives:**

- To give knowledge on current Trends in Information Technology.
- 

**UNIT I**

Web development concepts – Web page creation – web site – web hosting.

**UNIT II**

Focusing of web site based on subject: Search Engines – Online Education – E-mail Servers – Job seeking sites.

**UNIT III**

Softwares : Free Softwares and downloading – Entertainment – Historical Sites.

**UNIT IV**

Innovative softwares and its applications : Multimedia and graphics softwares – Scientific Applications – Software development platforms.

**UNIT V**

Software : Testing – Maintenance – Integration.

**Reference Book**

1. Thomas A.Powell, HTML & XHTML
2. Rajkamal., Internet and web technologies

**Pattern of the Question Paper(External)**

**Maximum : 75 marks**

**Time : 3 Hours.**

**Part – A**

**I. Answer any Five questions: (5\*3=15)**

All questions carry equal marks. Out of 8 questions 5 should be answered.

**Part – B**

**II. Answer any Three questions : (3\*10=30)**

All questions carry equal marks. Out of 5 questions 3 should be answered.

**Part – C**

**III. Answer any Two questions : (2\*15=30)**

All questions carry equal marks. Out of 4 questions 2 should be answered.

**Skill Based Course offered by**  
**Computer Science Department to all First year UG students**

**UNIT I**

Introduction to computers – Definition and characteristics – Functioning of a computer – Generations of a computer – Hardware - Software.

**UNIT II**

Input Devices : Keyboard, Mouse, Barcode Reader.

Output Devices : Monitor, Printers: Impact and Non-Impact printers.

**UNIT III**

Memory – Primary memory : RAM and ROM.

Secondary Memory : Floppy disk, Hard Disk, Magnetic Tape & CD-ROM.

**UNIT IV**

MS Word : Windows Layout – menus : File, Edit, View, Insert, Format, Tools, Table, Windows – Saving & Exiting – Spell check – Table creation – Inserting pictures.

**UNIT V**

Computer Applications in various areas – Internet : Introduction to Network – Internet services.

**BOOKS FOR REFERENCES**

1. Donald H.Sanders, Computer Today – , McGraw Hill, 2<sup>nd</sup> Edition.
2. Sanjay Saxena, MS Office 2000 – Vikas Publishing Pvt. Ltd., New Delhi.
3. Easy Office 2000 – SISO Books, Thiruvananthapuram, First Edition.

**Skill Based Course Offered By  
PG Department Of Computer Science  
To**

**All First Year UG Students**

**Course Name : *COMPUTER LITERACY***

**With effect from 2011-2012**

**Pattern of the Question Paper(External)**

**Maximum : 75 marks**

**Time : 3 Hours.**

**Part – A**

**II. Answer all questions(objective type): (20\*2=40)**

All questions carry equal marks.

**Part – B**

**II. Answer any Ten questions : (10\*2=20)**

All questions carry equal marks. Out of 15 questions 10 should be answered.

**Part – C**

**IV. Answer any Two questions: (2\*7.5=15)**

All questions carry equal marks. Out of 4 questions 2 should be answered.