ARULMIGU PALANIANDAVAR ARTS COLLEGE FOR WOMEN, PALANI

(AUTONOMOUS)

(Re-accredited with 'A' Grade by NAAC)

Bachelor of Computer Applications
(2014-2017)

PG DEPARTMENT OF COMPUTER SCIENCE

Under Choice Based Credit system

PG DEPARTMENT OF COMPUTER SCIENCE
Bachelor of Computer Applications

REGULATIONS

1. **Qualification for Admission**

➢ Candidate should have passed the Higher Secondary Examination conducted by the board of syndicate as equivalent there to with Mathematics or Computer Science and at least one of the following subject.

  o 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.

➢ The passing minimum is 40% (both in internal and external separately) in each paper.

➢ To get Graduation, the students should gain minimum 140 credits.

7. **Evaluation**

➢ Evaluation of the candidates shall be through both internal and external assessment. The ratio of internal and external assessment should be 40:60.

➢ For each course there will be Continuous Internal Assessment(CIA) and Final Semester Examination

➢ CIA Carries 40 Marks.

➢ The break-up for internal assessment shall be as follows:

Written Test	:	25	Marks
Seminar	:	10	Marks
Assignment	:	5	Marks
Total		40	Marks

8. Passing Requirements

Scoring 40% Minimum in Internal and 40 % Minimum External Examination

Course	Internal (40 Marks)	External (60 Marks)	Average of Passing Minimum
UG	**16/40(40 %)**	**24/60(40%)**	**40/100**

9. Question Paper Pattern:

Type	No. of questions to be Answered	Marks
Objective	10 Questions to be answered(no choice and all questions are compulsory)	(10*1)=10
Paragraph about 1 ½ Pages	5 Out of 7 questions	(5*4)=20
Essay Type- about 3 Pages	3 out of 5 questions	(3*10)=30
Total		**60**

10. Question Paper Model:

EXTERNAL QUESTION PATTERN

(For Core, Allied, Elective, SBS and NME Paper)

Maximum : 60 Marks   **Time :3 Hours**

PART A

Answer All questions: (Two Questions from each Unit)   (**10*1=10**)

This may include Multiple choice, true or false, fill up, very short answer and simple Examples

PART B

Answer any FIVE out of SEVEN questions   (**5*4=20**)

 Each Unit must have one or Two Question

PART C

Answer any THREE Out of FIVE Questions   (**3*10=30**)

(One Question from each Unit)

ARULMIGU PALANIANDAVAR ARTS COLLEGE FOR WOMEN, PALANI.

COMMON ACADEMIC STRUCTURE IN AUTONOMY

PG DEPARTMENT OF COMPUTER SCIENCE

BACHELOR OF COMPUTER APPLICATIONS

CORE STRUCTURE AS PER TANSCHE GUIDELINES FOR UG PROGRAM

Semester	Title of paper	Hours	Marks			Credits
			Int.	Ext.	Total	
I	**Part – I** Tamil	6	40	60	100	3
	Part – II English	6	40	60	100	3
	Part – III :					
	Core – I Programming in C	6	40	60	100	4
	Core –II Programming in 'C' Lab	6	40	60	100	4
	Allied I : Principles of Information Technology	5	40	60	100	4
	Part – IV Value Education – Yoga	1	40	60	100	3
	Total	**30**				**21**
II	**Part – I** Tamil	6	40	60	100	3
	Part – II English	6	40	60	100	3
	Part – III Core – III Object Oriented Programming with C++	6	40	60	100	4
	Core –IV Data Structures Using C++ Lab	5	40	60	100	4
	Allied II –Data Structure	5	40	60	100	4
	Part – IV Environmental Science	2	40	60	100	2
	Total	**30**				**20**

Semester	Title of paper	Hours	Marks			Credits
			Int.	Ext.	Total	
III	**Part – I** Tamil	6	40	60	100	3
	Part – II English	6	40	60	100	3
	Part III Core V– Visual Programming	5	40	60	100	4
	Allied III – Resource Management Techniques	5	40	60	100	4
	Elective I –Visual Programming Lab	4	40	60	100	3
	Part – IV SBS I - Office Automation	2	40	60	100	2
	NME I–Computer Fundamentals and Internet Basics *(Offered to Other Department Students)*	2	40	60	100	2
	Total	**30**				**21**
IV	**Part – I** Tamil	6	40	60	100	3
	Part – II English	6	40	60	100	3
	Part III Core VI- Relational Database Management System	4	40	60	100	4
	Core VII- Computer Organization and Architecture	4	40	60	100	4
	Allied IV – Business Accounting	3	40	60	100	4
	Elective II – Relational Database Management System Lab	3	40	60	100	3
	Part – IV SBS II – Tally Lab	2	40	60	100	2
	NME II – Information Technology *(Offered to Other Department Students)*	2	40	60	100	2
	Total	**30**				**23**

Semester	Title of paper	Hours	Int.	Ext.	Total	Credits
V	**Part – III**					
	Core VIII – Operating System	5	40	60	100	4
	Core IX – Java Programming	5	40	60	100	4
	Core X – Software Engineering	5	40	60	100	4
	Core XI – Java Lab	5	40	60	100	4
	Core XII – Computer Networks	5	40	60	100	4
	Elective III – Numerical Methods	3	40	60	100	3
	Part – IV					
	SBS III – Quantitative Aptitude	2	40	60	100	2
	Total	**30**				**25**
VI	**Part – III**					
	Core XIII – Web Technology	5	40	60	100	4
	Core XIV - Computer Graphics	5	40	60	100	4
	Core XV – Data Mining	5	40	60	100	4
	Core XVI – Project Work	5	40	60	100	4
	Core XVII – Multimedia Lab	5	40	60	100	4
	Elective IV Principles of Management	3	40	60	100	3
	Part – IV SBS IV- Soft Skills	2	40	60	100	2
	Part – V Extension Activities	-				3
	Total	**30**				**28**
Total Number Of Credits						**140**

CORE I
PROGRAMMING in 'C'

Hours: 6   **Credits : 4**

         Semester: I

Objectives:

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

Unit – I

History of C – Basic Structure of C Programs – Character Set –C Tokens – Keywords and Identifiers – Constants and Variables – Data Types – Storage Class - Operators and Expressions.

Unit - II

Managing Input and Output Operations - Decision Making and Branching : IF statement – Simple IF Statement-The IF….ELSE Statements - Nesting of IF…..ELSE Statement – The Switch Statement – The ? : Operator - The GOTO Statement - **Loops in C** – The WHILE Statement – The DO Statement – The FOR Statement-Jumps in LOOPS.

Unit - III

Arrays : One-dimensional Arrays – Two-dimensional Arrays – Multi-dimensional Arrays – Character Arrays and Strings – General form of a Function – Functions with Arguments – Function declaration and Prototypes – Call by value and call by Reference – Calling functions with Arrays – Recursion.

Unit - IV

Structures: Concepts – Initialization. Pointers.

Unit - V

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

Text Book

1.'Programming in ANSI 'C', E.Balagurusamy, Third Edition , Tata McGraw-Hill Publishing Company,2002.

Core II

PROGRAMMING IN 'C'- LAB

Hours : 6   Credits   : 4
                                                             Semester : I

Program List:

- ➢ To find the Sum of Digits of a Number.

- ➢ To Reverse a given Digits.

- ➢ Prime Number Series.

- ➢ Armstrong Number Series.

- ➢ Matrix Manipulation and Transpose of a Matrix.

- ➢ Palindrome using String.

- ➢ String Concatenation.

- ➢ Count number of words, character and lines.

- ➢ Standard deviation

- ➢ Fibonacci using Recursion.

- ➢ Swapping using Pointers.

- ➢ To prepare student Mark List using Structure.

- ➢ To prepare EB Bill using Files.

ALLIED I

PRINCIPLES OF INFORMATION TECHNOLOGY

Hours :5   *Credits: 4*

Semester: I

Objectives:

1. To have clear knowledge in basic IT components.

2. To know the applications of computer in various fields.

UNIT-I

Computer System:Introduction to computer-Classification of Digital Computer Systems-Anatomy of Digital Computer-Memory Units-Auxiliary Storage Devices: Hard Disk-Floppy Disk-Optical Disk- CD-ROM..

UNIT-II

Input Devices-Output Devices-Computer Network:Introduction-Oprating System-Utilities-Compilers and Interpreters**.**

UNIT-III

Computer Network : Introduction-Types of Network-Network Topologies.Internet: Internet Basics-Internet Protocols:HTTP-TCP/IP-FTP.

UNIT-IV

Multimedia: Introduction - Multimedia in Entertainment - Multimedia in Software Training-Multimedia on the Web-Multimedia in office work – Multimedia in Servers and Databases. Multimedia Tools : Applications - Sound & Music-Video

UNIT –V

Computers In Entertainment : Movies –Music- Advertising & Arts- Computers In Medicine –Computers in Science - Computers in Engineering :ED1- CAD/CAM-PDM.

TEXTBOOK

Fundamentals of Information Technology by Alexis leon & Mathews leon

CORE III

OBJECT ORIENTED PROGRAMMING WITH C++

Hours : 6   Credits   : 4

                                                                              Semester: II

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 – Application of OOP.

Introduction to C++ : Tokens, Keywords, Identifiers and Constants ,Data types , Variables, Operators, Manipulators, Expressions and Control Structures in C++.

UNIT II

FUNCTIONS IN C++ - Main Function – Function Prototyping – Call by Reference – Inline Function- Function Overloading – Friend and Virtual Functions.

UNIT III

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

UNIT IV

Inheritance – Single 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 – Detecting End-of-File – File Pointers – Updating a File – Error handling During File Operations – Command Line Arguments .

Text Book:

1. Object Oriented Programming with C++ by E. Balagurusamy, Tata McGraw-Hill, New Delhi 2002. 4th Edition.

CORE IV

DATA STRUCTURES USING C++ LAB

Hours: 5   **Credits : 4**

Semester: II

1. Print the Student Name, Register Number ,Marks, Total and Average using Array Of Objects.

2. Sum of the given numbers using Function Overloading

   a. Two Integer Values

   b. Three Integer Values

   c. Two double Values

3. Banking Operations using Constructors.

4. Sum of the two values using '+' operator overloading using

   a. Two integer values   b. Two floating values

5. Find the Arithmetic operations using Inline function.

6. Write a C++ program to apply single inheritance and assume the fields by your own.

7. Write a C++ program to apply multiple inheritances and assume the fields by your own.

8. Write a C++ program to apply the THIS pointer to greatest age among them.

9. Write a C++ program to apply run time polymorphism to display the book details.

10. Create a sequential file with fields with student name, register number C++ Mark, Maths mark, Science mark and write another program to access the file and calculate total mark, average and result.

11. Stack Operations

12. Queue Operations

13. Binary Search

14. Sorting.

ALLIED II
DATA STRUCTURES

Hours: 5   *Credits : 4*

Semester: II

Objectives:

1. To know the basic terminology, Notations and Operators.

2. To understand the concepts of Stack, Queue, Linked list, Tree and Graph.

1. To have the clear ideas about Data Structures representations in Memory, Operators and Applications.

UNIT I

Introduction: 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 – Dynamic Storage Management – Garbage Collection and Compaction.

UNIT IV

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

UNIT V

GRAPHS: Terminology and Representations – Traversals, Connected Components and Spanning Trees - Shortest Paths and Transitive Closure – Activity Networks and Critical paths.

Text Book:

1. Fundamentals of Data Structures by Ellis Horrowitz, Sartaj Sahini – Galgotia Publicaitons, 1998.

CORE V

VISUAL PROGRAMMING

Hours: 5   Credits : 4

                                                                     Semester: III

Objectives:

   1.To know the core concepts of Visual Programming.

   2.To design Forms

   3. To create database tables and create reports.

UNIT – I

Introducing Visual Basic: What is VB? – Event and Event Procedures – Object-relate 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 Controls and Reporting - RecordSets, ADODC, DAO, RDO, Data Control (Accessing records, Adding, Navigation, Editing and Deleting),Flex Grid. Database Reporting - Data Environment Designer, Creating Data Report,Crystal Report.

Text Book

1.Visual Basic 6 from the Ground Up, Cornell, TMH
2.Visual Basic – Byran S.Goftfried, Schaum's outline series, TMH
(Unit:I Chapters : 1,2 & 3, Unit:II Chapter 4 Unit:III Chapter 5 & 6 Unit:IV Chapter 7 &8)

ALLIED III

RESOURCE MANAGEMENT TECHNIQUES

Hours : 5   *Credits : 4*

Semester: III

Objectives:

1.To give basic ideas about Operational Research.

2.To solve problems using Simplex Method,Big-M Method etc.,

3. To solve Transportation Problems and Assignment Problems.

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

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

ELECTIVE I

Visual Programming Lab

Hours: 4   *Credits : 3*

Semester: III

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. Designing a color mixer using basic colors.

7. Picture Animation

8. Authentication form using List Box.

9. Student Mark List using DAO.

10. Employee details using ADO.

11. Flex grid controls

12. Changing the font color, size and save the file using common control dialog box and Rich text box.

13. To change the shape using Combo box

<u>Sill Based Subject I</u>

OFFICE AUTOMATION

Hours : 2   *Credits : 2*

                                                              Semester: III

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 – PowerPoint

8. Scenery Creation

9. Creating Presentation using Wizard

10. Slide show on College Courses

11. Creation Charts using Power Point

MS – Access

12. Students Mark List

13. Employee Payroll

14. Form Creation

Non Major Elective –I

Computer Fundamentals and Internet Basics

(Offered to Other Department students)

Hours : 2   *Credits : 2*

                                                                                        Semester : III

Objectives:
1.To give basic Computer Knowledge.

2.To Know the Internet Basis.

UNIT I

Introduction to computers – Definition and Characteristics – Functioning of a Computer – Generations of a Computer – Hardware - Software.

UNIT II

Input Devices : Keyboard- Mouse – Trackball- Joystick – Digitizing Tablet – Scanners – Digital Camera- MICR –OCR-OMR-Touch Screen.

UNIT III

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

UNIT IV

Memory : Primary memory: RAM and ROM. Secondary Memory : Floppy disk, Hard Disk & CD-ROM.

UNIT V

Internet Basics: World Wide Web – Search Engines – Web Browsers.

Text Book

1. Donald H.Sanders ,Computer Today – McGraw Hill, 2nd Edition.

2. Yaung Kaiseng using the internet the easy way – Minerva Publications, reprint 2003.

CORE VI

RELATIONAL DATABASE MANAGEMENT SYSTEM

Hours : 4   *Credits : 4*

                                                                                                   Semester: Iv

OBJECTIVES:
1. *To know the core concepts of RDBMS.*
2. *To create and connect multiple tables.*
3. *To have theoretical knowledge on SQL commands and PL/SQL..*

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, 3rd Edition.

<u>CORE VII</u>

COMPUTER ORGANIZATION AND ARCHITECTURE

Hours: 4   Credits : 4

Semester: IV

OBJECTIVES:

1. To know about the basic structure of hardware and software.

2. To know input output organization and memory subsystem.

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.

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- Instruction set of 8085.

Text Book

Computer Organization by Vcarl Hamacher,Zronko G Vrancis,Software G.Zaky-McGraw Hill publication,Fourth Edition,1996.

Reference book

Computer system Architecture by Morris Mano.

<u>**ALLIED IV**</u>

BUSINESS ACCOUNTING

Hours : 3   *Credits   : 4*

                                                                              Semester: IV

OBJECTIVES:

    1.   To know the basic Accounting Frame work.

    2.   To understand the concepts and conventions of Accounting.

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.

ELECTIVE II

RELATIONAL DATABASE MANAGEMENT SYSTEM - LAB

Hours:3   *Credits:3*

Semester: IV

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

SKILL BASED SUBJECT- II

TALLY LAB

Hours : 2   *Credits   : 2*

Semester : IV

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)

Non Major Elective II

INFORMATION TECHNOLOGY

Hours : 2   *Credits : 2*

Semester: IV

Objectives:
1. *To know the various aspects of information Technology.*

2. *Understand the concepts and technology involved in the field of information Technology.*

UNIT I

Introduction: Information systems – Computer in Business and Industries - Computers in home .

UNIT II

The Computer in Education & Training – Computer in Entertainment, Science, Medicine & Engineering.

UNIT III

Internet and World Wide Web – Introduction - The Web - Getting Connected to web – Browsing web – Locating information on Web – Web Multimedia.

UNIT IV

Multimedia – an introduction – Tools of multimedia .

UNIT V

New Technologies in information Technology – E Commerce – Hypermedia –Geographic information System

Text book

1. Fundamentals of Information Technology. Alex Leon, Mathews   Leon ,Leon Vikas Publications.

CORE VII

OPERATING SYSTEM

Hours : 5   Credits : 4

Semester: V

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. **Processes**: Concepts. **Scheduling** : Types of Schedulers - Scheduling Algorithms.

UNIT II

Inter-Process Communication & Synchronization: Need for Inter Process 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's View of the File Management: Directories.

UNIT IV

Security and Protection: Security Policies and Mechanisms –Authentication – Cryptography-Worms and Viruses.

UNIT V

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

Text Book

Operating Systems (Concept and Design)-Milen Milankovic, II Edition, 1987, Tata McGraw-Hill INC (Chapters 1-9, 12, 13)

CORE IX

JAVA PROGRAMMING

Hours: 5   *Credits : 4*

Semester: V

Objectives:

1. To inculcate knowledge on Java Programming Concepts.

2. To create wide range of Applications and Applets using Java.

UNIT I

Over View of Java Language:

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

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 Threads - 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

Programming with JAVA-E.Balagurusamy,4th Edition.

CORE X

SOFTWARE ENGINEERING

Hours : 5   Credits : 4

Semester: V

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:

Software Engineering by K.K.Agarwal

CORE XI

JAVA LAB

Hours : 5   *Credits : 4*

                                                              Semester: V

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

<u>**CORE XII**</u>

COMPUTER NETWORKS

Hours : 5   *Credits : 4*

Semester: V

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 of Computer Networks – Network Hardware: LAN- MAN – WAN- Wireless Networks – Network Software – Reference Models: OSI – TCP/IP- Comparison of OSI and TCP/IP.

UNIT II

Physical Layer : Guided Transmission Media: Magnetic Media – Twisted Pair – Coaxial Cable – Fiber Optics – Wireless Transmission : Electromagnetic Spectrum – Radio Transmission – Microwave – Infrared and Millimeter – Light wave Transmission – Telephone Network: Structure of the Telephone System - Switching - Communication Satellites.

UNIT III

Data Link Layer: Services Provided to the Network Layer- Framing- Error Control – Flow Control- Error Detection and Correction - Elementary Data Link Protocols: An Unrestricted Simplex Protocol- A Simplex Stop-and-Wait Protocol- A Simplex Protocol for a Noisy Channel- Sliding Window Protocols: A One-Bit Sliding Window Protocol- A Protocol Using Go Back N- A Protocol Using Selective Repeat.

UNIT IV

Network Layer: Network Layer Design Issues- Routing Algorithms: The Optimality Principle- Shortest Path Routing- Flooding- Distance Vector Routing- Link State Routing- Hierarchical Routing- Routing for mobile Hosts - Broadcast Routing- Multicast Routing.

UNIT V

Transport Layer: The Transport Service: Services Provided to the Upper Layers-Transport Service Primitives- Elements of Transport Protocols: Addressing- Connection Establishment- Connection Release- Flow Control and Buffering -Multiplexing.

Application Layer: DNS- The Domain Name System: The DNS Name Space- Resource Records- Name Servers- Electronic Mail: Architecture and Services- The User Agent- Message Formats- Message Transfer.

Text Book:

❖ Computer Network by Andrew S.Tanenbawm PHI, III Edition, 1996.

Reference Book:

❖ Data Communications and Networking-BehrouzA.Forouzan,Four EditionTMH,2006.

<u>**ELECTIVE III**</u>

NUMERICAL METHODS

Hours : 3   *Credits : 3*

Semester: V

OBJECTIVES:

1. *To understand the concepts of Mathematics.*
2. *To know the various Techniques of Numerical Methods in problem solving.*

UNIT I

      Iterative Methods: Introduction – Beginning iterative method of Successive Bisection, False Position, Newton Raphson.(Problems Only)

UNIT II

      Solution of Simultaneous algebraic Equations: Introduction – Gauss Elimination – Pivoting – Refinement of the solution obtained by Gauss Elimination – Gauss Seidal iterative method.(Problems Only)

UNIT III

      Interpolation: Introduction – Lagrange interpolation – Difference – Tables .

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

UNIT IV

      Differentiation and Integration: Introduction – Formulae for numerical differentiation – numerical Integration Simpson's Rule – Gaussian Quadrature. (Problems Only)

UNIT V

      Numerical Solution of Differential Equations: Introduction – Euler's Method – Taylor Series – Runge-Kutta Methods. (Problems Only)

Text Book

      Computer Oriented Numerical Methods by V.Rajaraman, Prentice Hall of India Limited, 1997

Chapters: 2,3,4,5,6,7,8,9

PART IV

SILL BASED SUBJECT III

QUANTITATIVE APTITUDE

Hours : 2   *Credits   : 2*

                                                                                       Semester: V

UNIT I:

Operations on Numbers – Tests of Divisibility – Solved Examples – Problems on Numbers

UNIT II:

Problems on Ages – Percentage – Profit & Loss – Ratio & Proposition – Partnership

UNIT III:

Time & Work – Time & Distance – Problems on Trains

UNIT IV:

Simple calendar Problems – Permutations & Combinations.

UNIT V:

General Mental Ability: Coding – Decoding – Blood Relations – Puzzle Test – Data
Sufficiency

Text Book:

1) **Quantitative Aptitude for Competitive Examination, by R.S.AGGARWAL, Revised Edition**
2) **A Modern approach to Verbal & Non Verbal Reasoning by Dr.R.S. AGGARWAL Unit-V**

<u>CORE XIII</u>

WEB TECHNOLOGY

Hours:5   *Credits : 4*

                                                                         Semester: VI

Objectives:

1. To understand the fundamentals steps in Website Creation.
2. To inculcate knowledge on .Net Framework.

Unit I:

     Hyper Text Markup Language (HTML) – Introduction HTML tags – Commonly used HTML commands – Lists – Tables – Links – Frames.

Unit II:

    Introduction to .NET - .NET Defined – The .NET Framework : Common Language Runtime – Base class Libraries - Visual Basic .NET. VB6 and VB .NET Differences: Data Type Changes - Arrays- Operators- User Defined Types- Null Values, Variables- Procedures- Properties- Control Flow- Form-based Application Changes- Application Types- Data Access.

Unit III

    Variables ,Data Types and Operators :Data Types: Bits and Bytes – Numeric data Types – Character Data Types - Variables : Option Explicit – Option Strict – Constants. Assignment and Arithmetic Operators : Assignment Operator – Type Conversion – Arithmetic Operators – Input box function and returning – comparison and logical operators.

Unit IV

     Controlling the flow of program : Control Structures – If statement – Select case Statements – Loops and Arrays: Loop Structures – Arrays – Procedures: Type of Procedures – Subroutines – Functions – More on Arguments.

Unit V

     User Interface: Helper Forms – Message Boxes – Dialog Boxes – Owned Form- Menus and Toolbars: Menus: Creating a menu – Add functionality to the Menu Items – Enhancing the Menu – Disabling Items on Windows Forms Menus – Context Menu – Toolbars .

Text Book

1. Web Enabled Commercial Applications Development Using HTML, DHTML, JavaScript, Perl, CGI, (2nd Revised Edition), Ivan Bayross, (Unit I)

2.Visual Basic .NET Programming Bible by Bill Evjen,Jason Beres,et al. Copy Right 2002 by Wiley Dreamtech India (P) Ltd., - Unit II

3. Visual Basic .NET A Beginner's Guide by Jeffrey Kent, TATA Mc GRAW-HILL Edition 2002 – Unit III ,IV & V

<u>**CORE XIV**</u>

COMPUTER GRAPHICS

Hours : 5   *Credits :4*

                                                                             Semester: VI

Objectives:
1. *To offer Concepts on basic Graphical Techniques.*
2. *To study about Two Dimensional Transformations.*

UNIT I

Application of Computer Graphics-Video Display Devices-Raster-scan systems-random-Scan system-Graphics Monitor-Input Devices-Hard –Copy Devices.

UNIT II

Output Primitives

Points and lines-DDA and Bresenhams lime algorithm-Circle generation algorithm -Circle generating algorithms-Ellipse Generating algorithm.

UNIT III

Attributes of output primitives

Line attributes-Curve attributes-Color levels Area-Fill attributes-Character attributes

UNIT IV

Geometric Transformations

Translation – Rotation – Scaling – Matrix representations and Homogeneous coordinates – composite Transformation – Reflection and Shear.

UNIT V

Viewing: The Viewing pipeline – Viewing coordinate Reference Frame – Window to View port coordinate transformation – Viewing functions – Clipping functions – point clipping – Line clipping – Curve clipping – Text clipping – Exterior clipping.

TEXT BOOK:
1. Computer Graphics – Donald Hearn and M.Pauline Baker PHI, Second Edition – 1994.

REFERENCE BOOK:
1. Computer graphics: principles and practice- Foley, VanDam, Feiner, and hughes, 3rd edition

CORE XV

DATA MINING

Hours:5   *Credits : 4*

Semester: VI

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 – Data warehousing Architecture – Metadata – OLAP - Data Warehouse Backend Process.

UNIT II

Data Mining: Definition – Comparison with other fields – DM Techniques – Issues Application Areas.

UNIT III

Association Rules: Methods – A Priori algorithm – Partition Algorithm – Pincer-Search Algorithm – Border Algorithm – Generalized Association Rules with Item constraints.

UNIT IV

Clustering Techniques: Clustering Paradigms – Partitioning Algorithms – CLARA – CLARANS- Hierarchical Clustering – DBSCAN – Categorical Clustering Algorithms – STIRR.
Decision Trees: Tree Construction Principle – Best Split – Splitting Indices – Splitting Criteria
 CART – ID3.

UNIT V

Web Mining: Introduction – Web Content Mining – Web Structure Mining – Web Usage Mining – Text Mining – Hierarchy of Categories – Text Clustering.

Text Book:

Data Mining Techniques – Arun K Pujari – Universities Press – 2001**.**

<u>CORE XVI</u>

PROJECT WORK

Hours : 5   *Credits   :   4*

                                                               Semester: VI

Objective:

1. Motivate the Students to work in emerging/latest technologies, help the students to develop ability, to apply theoretical and practical tools/techniques to solve real life problems related to industry, academic institutions and research laboratories.

The project is of 5 hours/week for one (semester VI) semester duration and a student is expected to do planning, analyzing, designing, coding, and implementing the project. The initiation of project should be with the project proposal. The synopsis approval will be given by the project guides.

The project proposal should include the following:

Title

Objectives

Input and output

Details of modules and process logic

Limitations of the project

Tools/platforms, Languages to be used

Scope of future applications

For the project work, the guide(internal) evaluate the work for 40 marks based on the performance of the candidates during the development of the project and the external examiner will evaluate the project work as follows:

Project Report -30 marks

VivaVoce -30 marks

The Project work should be either an individual one or group of not more than two members.

<u>**CORE XVII**</u>

MULTIMEDIA LAB

Hours:5   *Credits: 4*

Semester: VI

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.

<u>ELECTIVE -IV</u>

PRINCIPLES OF MANAGEMENT

Hours: 3   *Credits   :   3*
                                                                             Semester : VI

UNIT I

Management: Meaning & definition – Principles of Management – Management Vs Administration – Functions of Management – Levels of Management – Contributions of F.W Taylor and Henry Fayol.

UNIT II

Planning: Meaning and Definition – Objectives – Importance – Advantages –Limitation – Kinds – Process of Planning – Methods of Planning .**Decision Making:** Meaning and Definition- Characteristics - Importance – Process – 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

 Organization: Meaning and Definition – Features – Principles –Process of Organization – Merits of Organization – Consequences of Poor Organization - **Organizational Structure:** Introduction – Line or Military Organization – Functional Organization – Line and Staff Organization – Line and Functional Staff System – Committee Organization.

Organizational Chart: Introduction – Types - **Organizational Manuals:** Types of Manuals – **Informal Organizations:** Meaning - Nature – Functions – Merits and Demerits.

Delegation of Authority

Authority and Responsibility - Accountability – Process of Delegation – Principles of Delegation – Obstacles to Delegation – Centralization and Decentralization of Authority.

UNIT IV

Motivation and Discipline

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

Meaning and Definition – Characteristics – Functions of Leader – Leadership Styles – Theories of Leadership.

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

<u>**SKILL BASED SUBJECT - IV**</u>

SOFT SKILLS

Hours: 2   *Credits : 2*

                                                                     Semester: VI

UNIT I: Soft skill

     Attitude and Aptitude - Lateral Thinking - Time is money- Are Leaders born or made? - Team

     Building - Interpersonal Skills

UNIT II: Business Communication:

     Business Communication in English - Presentation Skills - Business Correspondence

UNIT III: Group Dynamics :

     Interviews -   Group Dynamics

UNIT IV: Internet and Soft Skills

     Internet for Job Seekers

     Resume Preparation.

Text Book

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

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