ARULMIGU PALANIANDAVAR ARTS COLLEGE FOR WOMEN, PALANI

(AUTONOMOUS)

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

(Affiliated to Mother Teresa Women's University, Kodaikanal)

Chinnakalayamputhur, Palani-624615

BACHELOR OF COMPUTER APPLICATIONS

SYLLABUS

2016-17 to 2018-19 Batches

PG DEPARTMENT OF COMPUTER SCIENCE

Under Choice Based Credit System

ARULMIGU PALANIANDAVAR ARTS COLLEGE FOR WOMEN

PG DEPARTMENT OF COMPUTER SCIENCE

BACHELOR OF COMPUTER APPLICATIONS

REGULATIONS:

1. OBJECTIVES:

- To impart value based education
- To develop communication skills to secure a meaningful career in IT market
- To provide practical experience to complement the theoretical knowledge
- To develop skilled manpower in the areas like Software Engineering, Multimedia and web based applications.
- To provide conceptual grounding in computer usage as well as its practical business application

2. 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.
    - Physics / Chemistry

3. 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).

4. MEDIUM OF INSTRUCTION:

- English

5. GENERAL FRAMEWORK:

- Course study: Part I,II,III, IV,V subjects

6. ELIGIBILITY FOR 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 tests will be conducted and best of two will be considered for the internal mark consolidation.
- The passing minimum is 40% in each paper.
- To get Graduation, the students should gain minimum of 140 credits.

7. EVALUATION:

- 75% of marks are allotted for external evaluation and 25% of the marks are allotted for internal evaluation in each of the theory subjects.
- 60% of marks are allotted for external evaluation and 40% of the marks are allotted for internal evaluation in each of the practical subjects.
- For each course there will be Continuous Internal Assessment(CIA) and Final Semester Examination

PATTERN OF EVALUATION

	Int.	Ext.	Total
Theory	25	75	100
Practical	40	60	100
Project	40	60	100

INTERNAL ASSESSMENT COMPONENTS

Theory(25 marks)			**Practical(40 marks)**		
Test	-	15	Lab sessions	-	10
Assignment	-	5	Record	-	10
Seminar	-	5	Model test	-	20
		25			40

8 i) INTERNAL QUESTION PATTERN *(For Core, Allied and Elective Papers)*

Time: 1 Hour ***Total Marks: 15***

Section A

Answer **ALL** questions **(3*1=3 Marks)**

Section B

Answer any **ONE** out of **TWO** questions **(1*2=2 Marks)**

Section C

Answer any **ONE** out of **TWO** questions **(1*4=4 Marks)**

Section D

Answer any **ONE** out of **TWO** questions **(1*6=6 Marks)**

8 ii) INTERNAL QUESTION PATTERN *(For SBC & NME Papers)*

Time: 1 Hour ***Total Marks: 15 Marks***

Section A

Answer any **TWO** out of **THREE** questions **(2*2=4 Marks)**

Section B

Answer any **ONE** out of **TWO** questions **(1*4=4 Marks)**

Section C

Answer any **ONE** out of **TWO** questions **(1*7=7 Marks)**

8. iii) EXTERNAL QUESTION PATTERN *(For Core, Allied and Elective Papers)*

Time: 3 Hours ***Total Marks: 75***

Section A

Answer **ALL** questions **(10*1=10 Marks)**

This may include multiple choices, True or False, Fill ups, Very Short answers and Simple Examples

Section B

Answer any **FIVE** out of **SEVEN** questions **(5*3=15 Marks)**

(Each Unit must have one or Two Questions)

Section C

Answer any **FOUR** out of **SIX** questions **(4*5=20 Marks)**

(Each Unit must have one or Two Questions)

Section D

Answer any **THREE** out of **FIVE** questions **(3*10=30 Marks)**

(One Question from each Unit)

8iv) EXTERNAL QUESTION PATTERN *(For SBC & NME Papers)*

Duration: 3 Hours ***Total Marks: 75***

Section A

Answer any **FIVE** out of **EIGHT** questions **(5*3=15 Marks)**

(Each Unit must have one or Two Questions)

Section B

Answer any**FIVE** out of **EIGHT** questions **(5*6=30 Marks)**

(Each Unit must have one or Two Questions)

Section C

Answer any **THREE** out of **FIVE** questions **(3*10=30 Marks)**

(One Question from each Unit)

ARULMIGU PALANIANDAVAR ARTS COLLEGE FOR WOMEN,PALANI
(AUTONOMOUS)
Re-accredited with 'A' Grade by NAAC
(Affiliated to Mother Teresa Women's University)
Syllabus for
Bachelor of Computer Applications (2016-17 to 2018-19 batches)
BOARD OF STUDIES / MEETING -01.03.2016

UNIVERSITY NOMINEE

Dr. (Mrs).M.Pushparani MCA., Ph.D.,

Professor and Head,

Department of Computer Science,

Mother Teresa Women's University,Madurai centre,

Madurai.

SUBJECT EXPERTS

1. **Mr.M.Sulthan Ibrahim M.Sc., M.Phil.,**

   Assistant professor,

   Department of Computer Science,

   Government Arts College,

   Karur.

2. **Dr. (Mr).E. Karthikeyan M.Sc., M.Phil., Ph.D.,**

   Assistant Professor,

   Department of Computer Science,

   Government Arts College,

   Udumalpet.

ARULMIGU PALANIANDAVAR ARTS COLLEGE FOR WOMEN, PALANI(AUTONOMOUS)

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Bachelor of Computer Applications- CBCS

(Syllabus for 2016-2017 to 2018-19 batches)

Semester	Part	Title of Paper	Hours	Marks			Credits
				INT	EXT	TOT	
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 Lab I– Programming In 'C'	5	40	60	100	3
		Allied I – Principles of Management	5	25	75	100	5
	PART IV	**Skill Based Course I**– Computer Fundamentals and Internet Basics	2	25	75	100	2
		Value Education – Yoga Practical	1	-	-	-	-
		TOTAL	**30**			**600**	**21**
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++	5	25	75	100	5
		Core IVLab II – Object Oriented Programming With C++	5	40	60	100	3
		Allied II – Discrete Mathematics	5	25	75	100	5
	PART IV	**Skill Based Course –II:** Office Automation Lab	2	40	60	100	2
		Value Education – Yoga Theory	1	25	75	100	2

			30			**700**	**23**
III	**PART III**	**Core V** – Java Programming	5	25	75	100	5
		Core VILAB III – Java Programming	6	40	60	100	3
		Core VII – Digital Electronics	5	25	75	100	4
		Core VIIILab IV :Tally	5	40	60	100	3
		Allied III– Principles of Accounting	5	25	75	100	5
	PART IV	**Skill Based Course – III** Entrepreneurship Development	2	25	75	100	2
		Non Major Elective – I Office Automation **(Offered to other department Students)**	2	25	75	100	2
		Total	**30**			**700**	**24**
IV	**PART III**	**Core IX** – Relational Database Management System	6	25	75	100	4
		Core X LAB V– Relational Database Management System	5	40	60	100	3
		Core XI– Operating System	6	25	75	100	4
		Core XII – Web Technology	5	25	75	100	3
		Allied IV – Resource Management Techniques	6	25	75	100	5
	PART IV	**Skill Based Course– IV**: Web Designing Lab	2	40	60	100	2
	PART V	**Extension Activities**	-	-	-	100	1
		Total	**30**			**700**	**22**

V	PART III	**Core XIII** – Visual Programming	6	25	75	100	5
		Core XIV– Computer Networks	6	25	75	100	5
		Core XVLab VI – Visual Programming	6	40	60	100	3
		Elective I	5	25	75	100	5
		Elective II	5	25	75	100	5
	PART IV	**Skill Based Course V –** Quantitative Aptitude	2	25	75	100	2
		Total	**30**			**600**	**25**
VI	PART III	**Core XVI** – Computer Graphics	6	25	75	100	5
		Core XVII –System Programming	6	25	75	100	4
		Core XVIII – Project Work	7	40	60	100	5
		Elective III	5	25	75	100	5
	PART IV	**Skill Based Course VI –** VB.Net lab	2	40	60	100	2
		Environmental Studies	2	25	75	100	2
		Non Major Elective – II Internet Basics **(Offered to other department Students)**	2	25	75	100	2
		Total	**30**			**700**	**25**

TOTAL NUMBER OF CORE PAPERS : 18 (12 Theory + 6 Lab)

ELECTIVE : 03

PROJECT : 01

TOTAL MARKS : 4000

TOTAL CREDITS : 140

Credit Table:

Semester		I	II	III	IV	V	V1	TOTAL
Part –I		3	3	-	-	-	-	**06**
Part II		3	3	-	-	-	-	**06**
CORE	**Theory (52 Credits)**	5	5	12	11	10	9	**72**
	Project (5 Credits)	-	-	-	-	-	5	
	Lab (15 Credits)	3	3	3	3	3	-	
Allied		5	5	5	5	-	-	**20**
Elective		-	-	-	-	10	5	**15**
SBC		2	2	2	2	2	2	**12**
NME		-	-	2	-	-	2	**04**
EVS		-	-		-	-	2	**02**
Value Education		-	2		-	-	-	**02**
Extn.Activity		-	-		1	-	-	**01**
Total		**21**	**23**	**24**	**22**	**25**	**25**	**140**

NME Papers: (offered to other department Students)

1.Office Automation

2. Internet Basics

Electives Papers:

Elective I

1. Software Engineering
2. Pc Maintenance and Trouble Shooting
3. Neural Networks

Elective II

1. E-Commerce
2. Digital Image Processing
3. Data Mining

Elective III

1. Multimedia and its Applications
2. Client Server Computing
3. Mobile Computing

SEMESTER I

CORE I

PROGRAMMING IN 'C'

Hours: 5 ***Credits: 5***

Objectives:

1. To learn about C Programming Language
2. To discuss the various concept of the C Language
3. To Develop C Programming Skill

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.

UNITII

Managing Input and Output Operations: Decision Making and Branching: IF statement –Simple IF Statement – The IF….ELSE Statements – Nesting of IF…..ELSE Statements – The Switch Statement – The? : Operator – The GOTO Statement

Decision Making and Looping: 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.

User – defined Function: Elements of user defined functions – Definition of functions – Function calls – Functions declaration – Category of functions – Nesting of functions – Passing arrays to functions – Scope, visibility and life time of variables.

UNIT IV

Structures: Defining a Structure – Declaring Structure variables – Accessing structure members – Structure Initialization – Copying and comparing Structure Variables – Arrays of structure – Arrays within structure – Structure within structure.

Union: Introduction – Size of structure – Bit fields.

Pointers: Accessing the address of a variable – Declaration – Initialization – Accessing a variable through its pointer – Pointer expression – Pointers & characters string – Array of pointers – Pointers as functions arguments – Pointers and Structures.

UNITV

File Management : 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:

- ‘Programming in ANSI ‘C’, E.Balagurusamy, Fourth Edition, Tata McGraw – Hill Publishing Company, 2009.

Reference Book:

- “Let us C”, Yashwanth Kanetkar , BPB Publication

SEMESTER I

CORE II

LAB I – PROGRAMMING IN 'C'

Hours: 5 ***Credits : 3***

PROGRAM LIST:

- To find the Sum of Digits.
- 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.

SEMESTER I

ALLIED I

PRINCIPLES OF MANAGEMENT

Hours: 5 ***Credits: 5***

Objectives:

1.To discuss the various management concepts
2.To know about various organization and organizational charts
3.To give knowledge on leadership qualities

UNIT I

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

UNIT II

Planning: Meaning and Definition –Objectives – Importance – Advantages –Limitations – Kinds –Process of Planning – Methods of Planning

Decision Making: Meaning 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– Merits of Organization – Consequence of Poor Organization - Organizational Structure

Organizational Chart: Introduction –Types – **Organizational Manuals:** Types of Manuals. **Informal Organizations**: Meaning and 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: Meaning and Definition – Characteristics – Theories of Motivation – Maslow's Need hierarchy 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:

- Principles of management, T.Ramasamy, Himalaya Publishing House, Mumbai

Reference Book:

- Principles of Management ,S.Kathiresan , Dr.V.Radha , Prashana Publisher, Chennai

SEMESTER I

SKILL BASED COURSE – I

COMPUTER FUNDAMENTALS AND INTERNET BASICS

Hours: 2 ***Credits: 2***

Objectives:

1. To Learn the Basics of computer and Internet

UNIT I

Introduction to Computers: Introduction – Importance of Computer – Characteristics of Computer – Classification of Computers – Uses of Computers – Generation of Computers.

UNIT II

Classification of Digital Computer System: Introduction – Microcomputer –Mini Computer –Main Frames – Super Computers –Network Computers.

UNIT III

Anatomy of Digital Computers: Parts of Computers**:** Processor/CPU – Memory – Input Devices – Output Devices –Storage Devices.

UNIT IV

Introduction to Computer Software: Introduction – Computer Software – Hardware software interaction –Classification of Software – Operating System – Utilities – Compilers and interpreters.

UNIT V

Computer and its Applications – Types of Networks

Text Book:

- Fundamentals of Information Technology , Alexis Leon & Mathews Leon

SEMESTER II

CORE III

OBJECT ORIENTED PROGRAMMING WITH C++

Hours: 5 ***Credits: 5***

Objectives:

1. To discuss Oops Concepts.
2. To deal with I/O functions and control structures which are important for OOPs programming language
3. To develop C++ programming skill

UNIT I

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

Token, Expressions and Control Structures: Introduction – Tokens - Keywords, - Identifiers and Constants – Data Types – Variables – Operators – Manipulators - Expressions - Control Structures in C++.

UNIT II

Functions in C++: Introduction - Main Function – Function Prototyping – Call by Reference –Return by Reference - Inline Functions - Function Overloading – Friend and Virtual Functions.

UNIT III

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

UNIT IV

Inheritance: Introduction - Single Inheritance – Multilevel Inheritance –Multiple Inheritance- Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes – Abstract Classes.

Pointers, Virtual Functions and 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:

- Object Oriented Programming with C++ by E.Balagurusamy, Fourth Edition,Tata McGraw – Hill, New Delhi 2009.

Reference Book:

- "C++: The Complete Reference", Herbert schildt, Fourth Edition, McGraw – Hill Publications 2003.

SEMESTER II

CORE IV

LAB II OBJECT ORIENTED PROGRAMMING WITH C++

Hours: 5 ***Credits: 3***

PROGRAM LIST:

- Print the Student Name, Register Number,Marks, Total and Average using Array Of Objects.
- Sum of the given numbers using Function Overloading
  - Two Integer Values
  - Three Integer Values
  - Two double Values
- Banking Operations using Constructors.
- Sum of the two values using '+' operator overloading using
  - Two integer values b. Two floating values
- Find the Arithmetic operations using Inline function.
- Write a C++ program to apply single inheritance and assume the fields by your own.
- Write a C++ program to apply multiple inheritances and assume the fields by your own.
- Write a C++ program to apply the THIS pointer to greatest age among them.
- Write a C++ program to apply run time polymorphism to display the book details.
- 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.

SEMESTER II

ALLIED II

DISCRETE MATHEMATICS

Hours: 5 ***Credits: 5***

Objectives:

1. To give the basic knowledge on matrices, sets and series.
2. To solve the variety of discrete mathematical problems.

UNIT I

Matrices – Special type of Matrices – Operations – Inverse of Matrix – Elementary Transformation – Rank of Matrix – Simultaneous Linear Equations – Eigen values & Eigen Vectors – Cayley Hamilton Theorem.

UNIT II

Review of theory of Sets – Relations – Equivalence Relations – Partial Order –Function – Binary Operation.

UNIT III

Binomial, Exponential and Logarithmic series – statement and direct summation (Problems Only)

UNIT IV

Hyperbolic functions – Definitions – Relation between Hyperbolic functions – Inverse Hyperbolic functions.

UNIT V

Polynomial Equations – roots – Relation between Roots and coefficients – Imaginary and Irrational Roots – Descarte's Rule of Signs (Explanation and Application to simple problems only) – Newton's and Horner's Method.

Text Books:

- Ancillary Mathematics – Volume I By Narayanan and Manickavasagam Pillai Reprint 1986.
- Modern Algebra by S.Arumugam & A.Thangapandi Isaac, New Gamma Publishing House, Palayamkottai.

Reference Book:

- Treatment and contents as in Algebra by Manickavasagam Pillai and others,11th Revised Edition, Volume II

- Essential Computer MathematicsSeymour Lipschutz(Schaum's Outline Series in Computers – McGraw Hill)

Distribution of marks [Question Setting]

1. **80% of Questions from Problems[Sum]**
2. **20% of Questions from theory.**

SEMESTER II

SKILL BASED COURSE II

OFFICE AUTOMATION

Hours:2 **Credits:2**

PROGRAM LIST:

- **MS – Word**
  - Formatting the Text
  - Macro Creation
  - Table Creation
  - Mail Merge
- **MS – Powerpoint**
  - Scenery Creation
  - Creating Presentation using Wizard
  - Slide show on College Courses
  - Creation Charts using Power Point
- **MS – Excel**
  - Employee Payroll
  - Inventory Control
  - Chart Creation using Excel
- **MS – Access**
  - Students Mark List
  - Employee Payroll
  - Form Creation

SEMESTER III

CORE V

JAVA PROGRAMMING

Hours:5 ***Credits: 5***

Objectives:

1. To inculcate knowledge on Java Programming Concepts.
2. To create wide range of Applications and Applets using Java.

UNIT I

Fundamentals of Object Oriented Programming: Introduction – Object Oriented Paradigm – Basic concepts of OOP – Benefits of OOP – Applications of OOP – Java Evolution.

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 and 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.

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

UNIT III

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

Multithreading Programming: Creating Threads – Extending the Thread Class – Stopping and Blocking a Thread – Life Cycle of a Thread – Thread Exceptions – Thread Priority – Synchronization – Implementing the 'Runnable' Interface – Managing Error and Exceptions.

UNIT IV

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

Graphics Programming: The Graphics Class – Lines and Rectangles – Circle and Ellipses – Drawing Arcs – Drawing Polygons – Line Graphs – Using Control Loops in Applets.

UNIT V

Managing Input/Output Files in Java: Introduction – Concept of Streams – Stream Classes – Byte Stream Classes – Character Stream Classes – Input/Output Exceptions – Creation of Files – Reading/Writing Characters – Reading/Writing Bytes – Random Access Files.

Text Book:

- Programming with JAVA – E.Balagurusamy,Fourth Edition. Tata McGraw – Hill, New Delhi 2010.

Reference Book:

- "Java 2: The Complete Reference" by Herbert Schildt, Fifth Edition, Tata McGraw – Hill 2002.

SEMESTER III

CORE VI

LAB III – JAVA PROGRAMMING LAB

Hours: 6 ***Credits: 3***

PROGRAM LIST:

- To perform addition of complex numbers using class and objects.
- To perform multiplication of matrices using class and objects.
- To perform volume calculation using method overloading.
- Using command line arguments, test if the given string is palindrome or not.
- Using multilevel inheritance process student marks.
- Implement multiple inheritance for payroll processing.
- Package illustration.
- To Illustrate built – in exceptions (any four).
- To Create multiple threads
    - Using Thread class
    - Using Runnable interface
- String manipulation using string methods.
- Applet – Graphical methods
- Write a Java Program which open an existing File and append text to that file.

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SEMESTER III

CORE VII

DIGITAL ELECTRONICS

Hours: 5 ***Credits: 4***

Objectives:

1. To Give basic Knowledge on Digital Principles
2. To Give Knowledge on Digital Circuits.

UNIT I

Number Systems: Introduction –Number System – Binary numbers – Decimal to Binary – octal numbers – Octal to binary – Hexadecimal numbers – Hexadecimal to Binary and Octal Conversion – Floating point representation of Numbers –Binary Arithmetic Operations – 1's & 2's Complement – 9 's &10's complement – Binary Coded Decimal .

Codes: Weighted Binary Codes – Non weighted Codes – Error detecting codes – Error Correcting codes – Alpha numeric codes.

UNIT II

Boolean algebra and Minimization Techniques: Introduction – Boolean Logic Operations – Basic Laws of Boolean Algebra – Demorgan's Theorems– Sum of Products and Product of Sums – Karnaugh Map.

UNIT III

Logic Gates: Introduction – Positive and Negative Logic Designation – Logic Gates.

Arithmetic: Half Adder – Full Adder –Half Subtractor– Full Subtractor.

UNIT IV

Combinational Circuits: **Multiplexer**: Basic Four – Input Multiplexer – 8 to 1 Multiplexer – 16 to 1 Multiplexer.

De – Multiplexer: 1 to 4 De-Multiplexer – 1 to 8 De–Multiplexer – 1 to 16 De-Multiplexer.

UNIT V

Flip-Flops: Introduction – S-R Flip-Flops –D Flip-Flops –J-KFlip-Flops – T Flip-Flops.

Text Book:

- Digital Circuits and Design by S.Salivahanan and S.Arivazhagan, Third Edition, Vikas Publishing House Pvt. Ltd. New Delhi, 2007

Reference Book:

- Digital Electronics Principles, Devices, Applications by Anil K.Maini, Wiley Publications, 2007

SEMESTER III

CORE VIII LAB IV

TALLY

Hours: 5 ***Credits: 3***

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

PROGRAM LIST:

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

SEMESTER III

ALLIED III

PRINCIPLES OF ACCOUNTING

Hours: 5 ***Credits: 5***

Objectives:

1.To know the basic Accounting Frame work.
2.To understand the concepts and conventions of Accounting.

UNIT I

Meaning – Definition – Functions – Accounting Concepts and Conventions– Methods of Accounting – Rules of Double – Entry System – Preparation of Journal and Ledger.

UNIT II

Subsidiary books: Purchase book –Sales book– Purchase return book – Sales return book – Bills payable and Bills receivable book.

UNIT III

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

UNIT IV

Trial balance – Meaning – Objectives – Reasons for preparation of trial Balance – Rectification of Errors

UNIT V

Final accounts of sole Trading concerns – Adjustments: Closing stock, outstanding expenses, Prepaid expenses, Accrued income, income received in advance, depreciation, interest on drawings, bad debts, provision for doubtful debts –provision for discount on debtors and creditors

Text Book:

- Financial accounting , T.S.Reddy and A.Murthy, Margham Publication, Chennai

Reference book:

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

SEMESTER III

NON MAJOR ELECTIVE I

[Offered To Other Department Students]

OFFICE AUTOMATION

Hours: 2 ***Credits: 2***

UNIT I

Computer Fundamentals: Introduction- Block diagram of computer- Computer Software & Hardware- Generations of Computer- Classification of computers- Input devices-Output devices-Characteristics of computer-memory

UNIT II

Microsoft Word: Introduction- Microsoft Word - Microsoft Word basic features- Working with paragraphs- Working with tables-Mail merge

UNIT III

Microsoft Power Point: Introduction- Components of PowerPoint- Apply a design template-Correct spelling-Sorter View- Run PowerPoint Slide show-Print Slides-Create a title slide-Insert a new Slide-Use Two column text

UNIT IV

Microsoft Excel: Introduction- Microsoft Excel Window- Move around a work sheet-Entering excel formula& formatting data

UNIT V

Microsoft Access: Introduction- Access Basics-Design a Database-Build a Database

Text Book:

- Fundamentals Of Computers"by REEMA THAREJA from OXFORD UNIVERSITY PRESS
- Microsoft Office 2007 Fundamentals,1st Edition By Laura Story,Dawna Walls

SEMESTER IV

CORE IX

RELATIONAL DATABASE MANAGEMENT SYSTEM

Hours: 6 ***Credits: 4***

Objectives:

1. To know the Core concepts of RDBMS
2. To have knowledge on Normalization Techniques.
3. To Learn , to Write PL/SQL Procedures

UNIT – I

Introduction: Database System Applications – Purpose of Database Systems – View of Data – Database Languages – Transaction Management – Database users and Administrators – Overall System Structure.

UNIT – II

Relational Model: Entity – Relationship Model: Basic Concepts – Design Issues – Mapping cardinalities – Keys – E – R Diagrams – Weak entity sets – Extended E – R feature

UNIT – III

Data Normalization: Pitfalls in Relational Database Design- Entity – Decomposition – Functional Dependencies – Normalization – First Normal Form – Second Normal Form – Third Normal Form – Boyce – Codd Normal Form – Fourth Normal Form – Fifth Normal Form – Denormalization

UNIT – IV

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

Control Structures and Embedded SQL: Control Structures – Nested Blocks – SQL in PL/SQL – Data Manipulation – Transaction Control statements.

UNIT – V

PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes – Cursor FOR loops – SELECT…FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions (Predefined Oracle Server Exceptions, User Defined Exceptions).

PL/SQL Composite Data Types: Records – Tables – Varrays . **Named Blocks**: Triggers

Text Books:

- Database System Concepts, Abraham Silberschatz, Henry F.Korth, S.Sudarshan , TMH 5th Edition *(UNIT s – I, II, III-Chapter -7(7.1,7.2,7.3)*
- Database Management Systems, Alexis Leon, Mathews Leon , Lieon Vikas *(UNIT – III – Chapter -11)*
- Database Systems Using Oracle, Nilesh Shah, 2nd edition, PHI.
  (UNIT – IV: Chapters 10 & 11 UNIT – V: Chapters 12, 13 & 14)

Reference Book:

- Database Management Systems, Gerald V. Post, 3rd Edition, TMH.

SEMESTER IV

CORE X

LAB V– RELATIONAL DATABASE MANAGEMENT SYSTEM

Hours: 5 ***Credits:3***

PROGRAM LIST:

- DDL, DML, DCL Commands
- Logical, Comparison, Conjunctive & Arithmetic Operators.
- **Retrieving rows with Characters functions:**
  - CONCAT (Concatenation)
  - REPLACE
  - SUBSTR (Substring)
  - LENGTH
- **Retrieving rows with Aggregate functions:**
  - GROUP BY
  - HAVING
- **Retrieving rows with date functions & number function:**
  - SYSDATE
  - ABS, FLOOR, CEIL, ROUND, POWER
- **JOINS:**
  - Union, Intersection & Union all
  - Simple Join
  - Self-Join
  - Outer Join
- **CONSTRAINTS:**
  - Domain Integrity (Not Null, Check)
  - Entity Integrity (Unique & Primary Key)
  - Referential Integrity (Foreign Key)
- VIEW: **PL/SQL**
- PL/SQL Programs with Control Structures
- PL/SQL Programs with Exception Handling
- PL/SQL Programs with Cursors
- Creating & Calling Procedures

SEMESTER IV

CORE XI

OPERATING SYSTEM

Hours: 6 ***Credits: 4***

Objectives:

1. **To learn 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: What is an Operating System– Mainframe Systems– Distributed Systems **Processes:** Process Concept – Process Scheduling – Interprocess Communication

Unit II

Threads: Overview – Multithreading Models. **CPU Scheduling:** Basic Concepts– Scheduling Criteria – Scheduling Algorithms.

Unit III

Process Synchronization: Background – The Critical Section Problem – Synchronization Hardware – Semaphores.

Deadlock: System Model – Deadlock Characterization – Methods For Handling Deadlocks – Deadlock Prevention – Deadlock avoidance – Deadlock detection – Recovery from deadlock

Unit IV

Memory Management: Swapping – Contiguous Memory allocation –Paging – Segmentation – Segmentation with Paging – Virtual Memory: Demand Paging

Unit V

Security: User Authentication – Cryptography

File System Interface: File Concept – File Access Methods – Directory Structure.

Text Book:

- Operating Systems Concepts – Silberschatz , Galvin, gagne, Sixth Edition, John Wiley& Sons, Inc.

Reference Book:

- Operating Systems (Concepts and Design), Milan Milenkovic, Second Edition, Tata McGraw -Hill

SEMESTER IV

CORE XII

WEB TECHNOLOGY

Hours : 5 ***Credits : 3***

Objectives

1. **To know the internet Protocols and HTML tags.**
2. **To teach Java Script and JSP concepts.**

UNIT I

Introduction: Internet Basics-History of internet-Internet services and accessibility -Uses of the internet -Protocols -Web concepts

UNIT II

Internet protocols: Internet protocols –IP, TCP, UDP-Internet Application and application protocols –datagram vs stream –TFTP-FTP-Telnet-HTTP – E-Mail-Protocols-SMTP-POP

UNIT III

HTML: Introduction –outline of an HTML document –Head section , Prologue, link, Base Meta ,script, style – Body section ,linking headers, paragraph, text formatting

UNIT IV

JavaScript: Introduction –Language elements –Objectives of JavaScript –Other objects-arrays

UNIT V

JSP: Introduction –advantages of JSP-developing first JSP-Components of JSP-Reading Requesting information –retrieving the data posted from a HTML file to a JSP file –JSP sessions-cookies –Disabling session

Text Book:

- Web Technology: A developers Perspective , N.P Gopalan, PHI learning 2007

Reference Book:

- Teach yourself web technologies , ivon bayross, BPB publication

SEMESTER IV

ALLIED IV

RESOURCE MANAGEMENT TECHNIQUES

Hours: 6 ***Credits: 5***

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

Operation research: Introduction – Origin and development –Nature and features – Modeling –Advantages and Limitation of Models – Application of Operation Research.

Linear Programming Problem: Mathematical Formulation – Graphical Solution Method: Exceptional cases- Canonical and Standard forms LPP.

U**NIT II**

Linear Programming problem – Simplex method: Introduction- Computational procedures –Use of Artificial Variables –Degeneracy in Linear Programming.

UNIT III

Transportation problem: Introduction –LP Formulation of the Transportation Problem-Solution of a TP-Finding an I.B.F.S –Test for Optimality – Degeneracy in TP – MODI Method.

Assignment Problem: Mathematical Formulation of the problem –Solution methods of AP – Special case in AP –Travelling Salesman Problem.

UNIT IV

Games and Strategies: Two –Person Zero –Sum Games- The Maximum –Minimum Principle-Games without saddle points –Mixed Strategies-Graphic Solution of 2xn and mx2 Games –Dominance Property.

UNIT V

Network Scheduling by PERT/ CPM : Introduction –Network –Logical Sequencing – Rules of Network Construction – Critical Path Analysis – Probability consideration in PERT- Distinction between PERT and CPM.

Text Book

"Operations Research" knati swarup P.K Gupta, Manmohan sultan chand & sons, New Delhi

Reference Book:

- Introduction to operation research , P.K Gupta & D.S. Hira , Chand & sons, New Delhi
- Resource management techniques , Ganapathy
- Linear Programming , Arumugam, New Gamma Publishing House , Palayamkottai

Distribution of Marks: (For Question Paper Setting)

1. **25% of Question from Theory**
2. **75% of Question from Problem**

SEMESTER: IV

SKILL BASED COURSE – IV

WEB DESIGINING LAB

Hours: 2 ***Credits : 2***

PROGRAM LIST:

- Simple HTML Pages using formatting tags.
- Simple HTML Pages using Frames
- Simple Web page using Tables
- Website Design for a Department, College, Company etc.
- Java Script for a Mathematical Calculator
- Java Script – Number Puzzle
- Java Script – Magic Square
- Java script – Games using Random number generation
- Online Quiz using Java Script
- Validation of name, mobile number, date of birth, email id using Java Script
- Online Quiz using JSP
- Arithmetic operations using JSP

SEMESTER V

CORE XIII

VISUAL PROGRAMMING

Hours: 6 ***Credits: 5***

Objectives:

1. To know the core concepts of Visual Programming
2. To give practice in form designing
3. To create database tables and create reports

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 output – 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 data – 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 a Menu from Keyboard – Menu Enhancements – Submenus – Pop – Up Menus – Dialog Boxes – more about Msgbox Function – The Input Box function.

UNIT IV

Procedures: Modules and Procedures – Sub Procedures – Event Procedures – Function Procedures.

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, Data Control (Accessing records, Adding, Navigation, Editing and Deleting). Database Reporting – Data Environment Designer, Creating Data Report.

Text Books:

- 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)
- Visual Basic 6 Programming Bible Eric A Smith ,Valor Whisher ,Hank Marquis – unit V

Reference Book:

- Visual Basic 6 from Ground up, CORNELL, Tata Mc-Graw Hill Publications

SEMESTER V

CORE XIV

COMPUTER NETWORKS

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 of Computer Networks – Network Hardware: LAN – MAN-WAN – Wireless 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 –Lightwave Transmission –Telephone Network : Structure of the Telephone System –Switching –Communication Satellites.

UNIT III

Data Link Layer: Service Provided to the Network Layer –Framing –Error Control –Flow Control –Error Detection and Correction – Elementary Data Link Protocols : An Unrestricted Simplex Protocols –A Simplex Stop –and –Wait Protocols –A Simplex Protocols for a Noisy Channel-Sliding Window Protocols : A One –Bit Sliding Window Protocols –A Protocols Using Go Back N-A Protocols Using Selecting 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: Service Provided to the Upper Layers –Transport Services 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 –Research Records –Name Server –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 Communication and Networking –BehrouzA, Forouzan, Four Edition TMH,2006.

SEMESTER V

CORE XV

LAB VI – VISUAL PROGRAMMING

Hours: 6 ***Credits: 3***

PROGRAM LIST:

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

SEMESTER V

ELECTIVE 1.1

SOFTWARE ENGINEERING

Hours: 5 **Credits: 5**

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 – Definition of Software Engineering – The Changing Nature of Software – Software Myths – 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 Elicitation : interviews, brain storming sessions, Fast-Requirement analysis : Data flow diagram, Data Dictionaries –Requirements Validation

UNIT III

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

UNIT IV

Soft Design: Design: Conceptual and Technical designs, Objectives of design – Modularity –Function Oriented Design –Software reliability : Basic concepts, Software reliability, maturity levels –Software Testing : A Strategic Approach to Software Testing- Testing –Fuctional Testing –Structural – Level of Testing –Validation Testing.

UNIT V

Software Maintenance: Categories of Maintenance- Problem during Maintenance – Maintenance is Manageable –Potential Solution to maintenance problem –Maintenance process- Estimation of maintenance cost

Text Book:

"Software Engineering" by K.K.Agarwal, Third Edition 2008

Reference Book:

"Software Engineering Concepts", Richard e.Fairley, McGrawHill,

SEMESTER V

ELECTIVE 1.2

PC MAINTENANCE AND TROUBLE SHOOTING

Hours: 5 **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 – Winschester 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.

Reference Book:

1. IBM PC & CLONES, B.Govindrajalu, Tata McGrawhill Publishers,IBM PC & CLONES

SEMESTER V

ELECTIVE 1.3

NEURAL NETWORKS

Hours: 5 **Credits: 5**

Objectives:

1. To understand the fundamental on Pattern Recognition
2. To inculcate the knowledge on Neural Network Techniques

UNIT I

Introduction: Humans and Computers: The structure of the Brain, Learning in Machines, the Differences.

UNIT II

Pattern Recognition: Introduction, Pattern Recognition in Perspective, Pattern recognition – a definition, feature vectors and feature space, discriminate functions, classification techniques. Linear classifiers statistical techniques, Pattern Recognition

UNIT III

The Basic Neuron: Introduction: Modeling the single neuron, learning in simple neurons, the perception a vectorial perspective, the perception learning rule, proof, and limitations of perception.

The Multilayer Perceptron: Introduction, altering the perception model, the new model the learning rule, the multiplayer perception algorithm, the XOR problem revisited applications of multiplayer perception.

UNIT IV

Kohenen Self – Organizing Networks: Introduction, the kohenen algorithm, weight training neighborhoods, reducing the neighborhoods, learning vector quantization, the Phonetic typewriter.

Hopfield Networks: The Hopfield model, the energy landscape, the Boltzsman machine, constraint satisfaction.

UNIT V

Adaptive Resonance Theory: Adaptive resonance theory, architecture and operation, ART algorithm, training the ART network, clarification, conclusion, summary of ART. Hardware and Software implementations, Optical Computing, Optical Computing and neural networks.

Text Book:

- Neural Computing: An introduction R.Beale & T.Jackson, Adam Hilger, 1900.

Reference Books:

- 2.James A.Freeman,David M.Skapura – "Neural Networks – Algorithm,Application,and Programming techniques" Pearson Education.
- Fredic M.Ham,IvicalKostanic,"Principles of Neuro computing for science of engineering"TMCH.

SEMESTER V

ELECTIVE 2.1

E-COMMERCE

Hours: 5 **Credits: 5**

Objectives:

1. To know the –Commerce fundamentals and WWW technologies.
2. To have knowledge on e-payment and mobile commerce.

UNIT I

Information: Definition of e-commerce –Benefits –Impact –Classification, B2B,B2C, C2B, C2C, B2G.

UNIT II

Electronic Data Interchange (EDI): Definition of EDI –Building blocks of EDI system-Value added network- Benefits of EDI-Application of EDI-Framework electronic Commerce

UNIT III

Electronic Payment System: Introduction to Payment System –Online Payment System – Pre -paid Electronic Payment System –Post paid Electronics System –Requirements Metrics of a Payment System

UNIT IV

Mobile Commerce: Definition of Mobile Commerce –Benefits-impediments in Mobile Commerce-Mobile Commerce Framework.

UNIT V

Securing Network Transaction: Transaction Security –Cryptology –Cryptographic algorithms-Public Key Algorithms –Authentication Protocols –Digital Signatures –Electronic Mail Security Protocols for web Commerce -Conclusion

Text Book:

- E-Commerce –Bharat Baskar, Fourth Edition.

Reference Books:

- E-Commerce Strategy , Technologies and Application David Whiteley Tata Me-Graw-Hill

SEMESTER V

ELECTIVE 2.2

DIGITAL IMAGE PROCESSING

Hours: 5 **Credits: 5**

Objectives:

1. To understand the fundamentals steps in Digital image processing.
2. To inculcate knowledge on image compression and image segmentation.

UNIT I

Digital Image Processing : Definition – 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 Quantisation – 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 – Interpixel 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.

Text Book:

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

Reference Books:

- Anil K. jain ,"Fundamentals Digital Image Processing ", Pearson Education.
- B.Chandra and D. Dutta Majundar," Digital Image Processing and Analysis ", Prentice Hall of India private Ltd., New Delhi.

SEMESTER V

ELECTIVE 2.3

DATA MINING

Hours: 5 **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 – 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 CriteriaCART – 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.

Reference Book:

- "Introduction to Data mining with case studies", G.K. Gupta , PHI Private Limited , New Delhi,2008,2nd Edition.

SEMESTER V

SKILL BASED COURSE V

QUANTITATIVE APTITUDE

Hours: 2 **Credits: 2**

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 – Pipes & Cistern – 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

[1]**Logical Deduction:** Statement & Conclusion – Cause & Effect Reasoning.

Text Books:

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**

SEMESTER VI

CORE XVI

COMPUTER GRAPHICS

Hours: 6 **Credits: 5**

Objectives:

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

UNIT I

Video Display Devices: Refresh Cathode Ray tubes – Raster Scan Displays – Random Scan displays – Color CRT Monitors – Raster Scan System – Random Scan System.

UNIT II

Output Primitives: Points and Lines – Line –Drawing Algorithms – Loading frame Buffer – Line function – Circle – Generating Algorithms.

UNIT III

Attributes of Output Primitives: Line Attributes – Curve Attributes – Color and Grayscale Levels – Area – Fill Attributes – Character Attributes.

UNIT IV

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

UNIT V

Viewing: The Viewing Pipeline – Viewing Co – ordinate Reference Frame – Window – to – Viewport Co – ordinate Transformation – 2D Viewing Functions – **Clipping Operations:**Point Clipping – Line Clipping : Cohen – Sutherland Line Clipping ,Liang – Barsky Line Clipping – Curve Clipping – Text Clipping.

Text Book:

- Computer Graphics – Donald Hearn, M.Pauline Baker, 2nd Edition

Reference Book:

- Computer Graphics : Principles and Practice – Folely, vandam, Feiner and hughes, 3rd edition

SEMESTER VI
CORE XVII
SYSTEM PROGRAMMING

Hours:6 **Credits: 4**

Objectives:

1. 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

Macro Processers: Basic Macro processor Functions – Machine Independent Macro processor features – Macro processor Design options.

UNIT V

Complier: Basic Complier 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

Reference Book:

- System Software : An Introduction to System Programming – Leland L.Beck, 3rd Edition

SEMESTER VI

CORE XVIII

PROJECT WORK

Hours: 7 **Credits: 5**

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 7 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
Abstract and Description
Details of modules and process logic
Limitations of the project
Tools/Platforms, Languages to be used
Sample Codings and Screenshots

Conclusion

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 for 60 marks.

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

SEMESTER VI

ELECTIVE 3.1

MULTIMEDIA AND ITS APPLICATIONS

Hours: 5 **Credits: 5**

Objectives:

1. To know the components of multimedia.
2. To know more about Image and Animation
3. To have idea on multimedia project planning and costing

UNIT I

Multimedia Definition – Use Of Multimedia – Delivering Multimedia – Text: About Fonts and Faces – Using Text in Multimedia – Computers and Text – Font Editing and Design Tools – Hypermedia and Hypertext.

UNIT II

Images: Plan Approach – Organize Tools – Configure Computer Workspace – Making Still Images – Color – Image File Formats. Sound: The Power of Sound – Digital Audio – Midi Audio – Midi vs. Digital Audio – Multimedia System Sounds – Audio File Formats –Vaughan's Law of Multimedia Minimums – Adding Sound to Multimedia Project.

UNIT III

Animation: The Power of Motion – Principles of Animation – Animation by Computer – Making Animations that Work. Video: Using Video – Working with Video and Displays – Digital Video Containers – Obtaining Video Clips – Shooting and Editing Video.

UNIT IV

Making Multimedia: The Stage of Multimedia Project – The Intangible Needs – The Hardware Needs – The Software Needs – An Authoring Systems Needs. Multimedia Production Team.

UNIT V

Planning and Costing: The Process of Making Multimedia – Scheduling – Estimating – RFPs and Bid Proposals. Designing and Producing – Content and Talent: Acquiring Content – Ownership of Content Created for Project – Acquiring Talent 46 .

Text Book:

- Multimedia: Making It Work‖ – Tay Vaughan(Eight Edition)

Reference Books:

- Ralf Steinmetz & Klara Nahrstedt – ―Multimedia Computing, Communication & Applications ― Pearson Education

SEMESTER VI

ELECTIVE 3.2

CLIENT SERVER COMPUTING

Hours: 5 **Credits: 5**

Objectives:

1. 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:

- Robert Orfali, Dan Harkey and Jerry Edwards, "Essential Client/server Survival Guide" John Willey and Sons Inc., 1996.

Reference Book:

- Patrick /smith and Steve Guengerich," Client/Server Computing", prention Hall of India, Second Edition, 1997.

SEMESTER VI

ELECTIVE 3.3

MOBILE COMPUTING

Hours: 5 **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 horm 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:

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

Reference Book:

- Principles of Mobile communication , Gordan l. Stober,2nd edition , Springer science

SEMESTER VI

SKILL BASED COURSE-VI

VB .NET LAB

Hours:2 **Credits:2**

PROGRAM LIST:

- Write a program to find a grade of students.
- Write a program to find factorial of given number using functions.
- Write a program to arrange names in alphabetical order.
- Write a program to display the user information.(personal details)
- Calculator.
- Notepad.
- Employee details.
- Hospital Management system.
- Sales Transaction System.
- News Paper Vendor Details.

SEMESTER VI

NON MAJOR ELECTIVE II

(Offered To Other Department Students)

INTERNET BASICS

Hours:2 **Credits:2**

Objectives:

1. **To give basic computer knowledge.**
2. **To know the Internet Basis.**

UNIT I

Internet and its history –Defining and describing the Internet – Brief history –Discussing the future of the Internet

UNIT II

Internet Resources –Emails –Parts of Email software –Web –based email –Email address – Listservs – Newsgroup names –Newsgroups readers –Chat rooms- Conferencing –Games –File transfer protocols –Telnet-Gopher-World Wide Web

UNIT III

Accessing The Internet: Types of access –Online services –Internet services providers-How and where to look for the service

UNIT IV

Browsing The Web: Hypertext and hyperlinks –Using browsers –uniforms resource locator –Following links –Returning to the home page- Changing the home page –Favorites and Bookmarks –Cookies

UNIT V

Searching The Net: Search techniques –Boolean phrases –Search tools – Indexes-Directories –Example of search tools-saving and downloading

Text Book:

- The Complete Reference Internet, Margaret Levine young, 2nd Edition.