YADAVA COLLEGE

(* An Autonomous Co-Educational Institution*

****Accredited with "A" Grade by NAAC****

*****Affiliated to Madurai Kamaraj University*****)

Govindarajan Campus, Thiruppalai, Madurai – 625014.

DEPARTMENT OF INFORMATION TECHNOLOGY

UNDERGRADUATE

CBCS (2015-2018)

COURSE CONTENT

B.SC (IT)

BLUE PRINT OF THE QUESTION PAPER

B.Sc. Information Technology

Section	Type of Questions	No. of Questions	No. of Questions to be answered	Marks of each Questions	Total
A	Short answer Questions (Open Choice)	15	10	2	20
B	Paragraph type Questions (Open Choice)	8	5	5	25
C	Essay Type Questions (Either Or Choice)	5	3	10	30
Total					75

Evaluation Techniques

Title	Evaluation		Exam Duration	Total
	Internal	External		
Theory	25	75	3	100
Practical	40	60	3	100
Project	20	80	-	100

DEPARTMENT OF INFORMATION TECHNOLOGY

YADAVA COLLEGE (AUTONOMOUS)

CHOICE BASED CREDIT SYSTEM SYLLABUS PLAN (2015-2018)

UNDERGRADUATE PROGRAMME

B.Sc INFORMATION TECHNOLOGY

Semester	Part Code	Subject Code	Title of the Paper	Teaching	
				Hours	Credits
I	I		Tamil	5	3
	II		English	5	3
	III Core Paper		Principles of Information Technology	3	3
			Programming in C	3	3
	Allied Paper		Digital Principles	4	5
	Core Lab I		Office Application Lab	3	2
			Programming in C Lab	3	2
	IV ENS		Environmental Studies	2	2
	IV SBE		Skill Based Elective	2	2
II	I		Tamil	5	3
	II		English	5	3
	III Core Paper		Programming in C++	3	3
			Unix	3	3
	Allied Paper		Statistics	4	5
	Core Lab II		Unix Lab	3	2
			Programming in C++ Lab	3	2
	IV VAE		Value Education	2	2
	IV SBE		Skill Based Elective	2	2
	I		Tamil	5	3
	II		English	5	3
	III Core		Data Base Management System	3	3

III	Papers		Computer Organization	3	3
	Allied Paper		Financial and Management Accounting	4	5
	Core Lab III		Oracle Lab	3	2
			Tally Lab	3	2
	IV TAB		TAB/TAA/NME -Office Application Software	2	2
	IV SBE		Skill Based Elective	2	2
	SS		Self Study – Security in Computing	-	5
IV	I		Tamil	5	3
	II		English	5	3
	III Core Paper		Web Technology	3	3
			Java Programming	3	3
	Allied Paper		Operational Research	4	5
	Core Lab IV		Web Technology Lab	3	2
			Java Programming Lab	3	2
	IV TAB		TAB/TAA/NME - Publication Software System	2	2
	IV SBE		Skill Based Elective	2	2
	SS		Self Study-PC Hardware & Interfacing	-	5
V	III Core Papers		Computer Graphics	4	3
			Software Engineering	4	3
			Data Structure	4	3
			Vb.Net	4	3
	Elective I		1. Object Oriented Analysis and Design 2. MiniProject 3. Multimedia	4	2
	Core Lab V		Data Structure lab	4	2
			Vb.Net Lab	4	2
	IV SBE		Skill Based Elective	2	2
	III Core		Computer Network	4	3

VI	Papers		Operating System	4	3
	Elective II		1. PHP 2. Artificial Intelligence 3. Software Testing	4	2
	Core Lab VI		PHP& MYSQL lab	4	2
			Digital Processing using MATLAB	4	2
	Elective III		Project	6	5
	IV SBE		Skill Based Elective	2	2
	V PE/NCC		PE/NCC/NSS/EXT	2	1
Total				180	140

DEPARTMENT OF INFORMATION TECHNOLOGY

YADAVA COLLEGE (AUTONOMOUS)

CHOICE BASED CREDIT SYSTEM SYLLABUS PLAN (2015-2018)

UNDERGRADUATE PROGRAMME

B.Sc INFORMATION TECHNOLOGY

Nature of Subject		Title	Hours	Credit
Part I		Tamil	20	12
Part II		English	20	12
Part III	1	Principles of Information Technology	3	3
Core Theory	2	Programming in C	3	3
	3	Programming in C++	3	3
	4	Unix	3	3
	5	Data Base Management System	3	3
	6	Computer Organization	3	3
	7	Web Technology	3	3
	8	Java Programming	3	3
	9	Computer Graphics	4	3
	10	Software Engineering	4	3
	11	Data Structure	4	3
	12	Vb.net	4	3
	13	Computer Networks	4	3
	14	Operating System	4	3
Core Practical	1	Office Application Lab	3	2
	2	Programming in C Lab	3	2
	3	Unix Lab	3	2

	4	Programming in C++ Lab	3	2
	5	Oracle Lab	3	2
	6	Tally Lab	3	2
	7	Web technology lab	3	2
	8	Java Programming lab	3	2
	9	Data Structure lab	4	2
	10	Vb.Net lab	4	2
	11	PHP & MYSQL lab	4	2
	12	Digital Processing using MATLAB	4	2
Allied	1	Digital Principles	4	5
	2	Statistics	4	5
	3	Financial and Management Accounting	4	5
	4	Operational Research	4	5
Elective	I	a) OOAD b) Mini Project c) Multimedia	4	2
	II	a) PHP b) Artificial Intelligence c) Software Testing	4	2
	III	Project	6	5
Part IV	1	ENS	2	2
	2	VAE	2	2
	3	TAB/TAA/NME	4	4
	4	SBE	12	12
	5	PE/NCC/NSS/EXT	--	1
Total			180	140

SEMESTER: I

PRINCIPLES OF INFORMATION TECHNOLOGY

Total hours : 60hrs **Hrs / week: 3**
Sub. Code : **Credit : 3**

AIM:

To provide basic conceptual knowledge about the computer systems and information technology.

UNIT I:

Technology Fundamentals – Introduction to Computing – Basic Components of Computer Systems – CPU, Memory and I/O Devices – Characteristics and classification of computer system – Types of Memory – Data representation within a computer – Bits Bytes Words – ASCII and EBCDIC Formats.

UNIT II:

Microprocessors –Instruction Word – Op codes and Operands – Addressing Mode- 16-bit and 32-bit addressing modes, Direct, Immediate and addressing – Regiserts, MAR and MDR.

UNIT III:

Data Communication – Communication Protocols – Serial Parallel data transfer – Synchronous and Asynchronous Modes of Communication –Packet Switching - Types of network.

UNIT IV:

Software - Introduction to System Software - Operating System Fundamentals - Functions - Loaders and Linkers – Translators - Compilers and Interpreters - Application Software - Programming Languages – Algorithms - Programs - Steps in Program Development.

UNIT V:

Ms-Office – Word - Introduction to word-Editing a document-Move and Copy text-Formatting text & Paragraph-Enhancing document-Columns, Tables and other Features.

Excel -Introduction to worksheet and shell-getting started with Excel-Editing cell & using commands and functions-Moving & Copying, Inserting & Deleting Rows & Columns-Printing worksheet - Creating Charts-Naming ranges using statistical, math and financial functions. Power Point - Overview of PowerPoint – Slid show.

TEXT BOOK:

1. " Introduction to Information Technology" - ITL Solution Pearson publication

REFERENCE BOOKS:

1. "Fundamentals of information technology" by Alex leon, Methews leon

2. " Fundamentals of Computer" by Rajaraman

SEMESTER: I

PROGRAMMING IN C

Total hours: 60hrs **Hrs / week: 3**

Sub.Code: **Credit : 3**

AIM:

To learn the basic components and structure of a C program, learn to define variables, and use operators and operands to create C expressions and statements.

UNIT I:

Fundamentals of C: Overview of c-History of c- Importance of c- Executing a c program-character set- C tokens-Keywords & Identifiers - Constants, Variables , Data types-Storage class- Symbolic constants- Operators –Arithmetic expressions-Evaluation of expressions-type conversion in expressions-mathematical functions.

UNIT II:

Managing Input, Output & decision making: Reading a character-Writing a character-Formatted input- Formatted output-if-else- switch-case – while – for – Nested control structures – break – continue – go to statements-While - Do statements-FOR statement-jumps in loops.

UNIT III:

Arrays and strings: Defining an Array – Processing an Array – Array and functions – Multidimensional Arrays – Arrays and Strings.

UNIT IV:

Functions and Structures and Unions: Declaration – Definition – Calling – Passing values to functions – Storage Classes, Defining a Structure – Processing a Structure – Structure and Pointers – Passing Structures to functions – Unions.

UNIT V:

Pointers and files: Understanding pointers-accessing-declaring-initialization—pointer of expressions-array of pointers-file management-defining-opening-closing-error handling-command line arguments.

TEXT BOOK:

1. "Programming in ANSI C", Tata McGraw Hill, New Delhi, 2002 by Balagurusamy E.

REFERENCE BOOK:

1. "Programming with C", Tata McGraw Hill, New Delhi, 2002by Byron.S.Gottfried.
2. The C Programming Language, 2nd Edition, PHI, 1988 by B.W. Kernighan and D.M.Ritehie.

SEMESTER: I

DIGITAL PRINCIPLES

Total hours: 60hrs **Hrs / week: 4**
Sub. Code : **Credit : 5**

AIM:

This subject deals with fundamentals of digital computers, Microprocessors and system architecture.

UNIT I:

Number Systems: conversions-binary, decimal, octal, hexadecimal-**Binary Arithmetic:** Binary Addition, Subtraction, Multiplication, Division,1's and 2's complement -subtraction using complementation.

UNIT II:

Binary Code:- Excess 3 code - Gray Code-ASCII Code. Logic gates:-Basic Logic Gate-OR gate – AND gate – NOT gate. **Universal Gate:** NAND gate-NOR gate-Ex-or Gate.

UNIT III:

Boolean Algebra:-Boolean Law and Theorems – Boolean simplifications- Karnaugh map –Minterms(sop) and Maxterms(pos) - K-Map simplifications-2variable,3variable,4variable,Pair,Quad,Octet-Overlapping-Rolling the map-Eliminating the Redundant groups - Don't Care conditions.

UNIT IV:

Arithmetic circuits - Half adder, Full adder, Control Inverter- Half subtracter, Full subtracter- Adder Subtracter. **Combinational Circuit**-: Multiplexers-Demultiplexers- Decoders-BCD to Decimal Decoders-7segment Decoders- Encoders-decimal to BCD encoder-.

UNIT V:

Flip flops: RS Flip flop-D Flip flop-JK Flip flop- JK Master Slave Flip flop- Schmitt Trigger. **Shift Registers and counters:** registers-shift register-serial in serial out- serial in parallel out-parallel in parallel out-parallel in serial out- Ring counter.

TEXT BOOK:

1. "Digital Fundamentals" by V.Vijayendran.

UNITS COVERED:

- **UNIT I**: Ch 1,2

- **UNIT II**: Ch 3,4
- **UNIT III**: Ch 5,6
- **UNIT IV**: Ch 8,9
- **UNIT V**: Ch 10,11

REFERENCE BOOK:

1. Digital Circuits and Design", S. Salivahanan, S. Arivazhagan, Second Edition
2. "Digital Principles and Applications", Dr. Vasu.

SEMESTER: I

OFFICE APPLICATION LAB

Total hours : 60hrs Hrs / week: 3

Sub. Code : Credit : 2

MS WORD

1.Preparing a neat aligned, error free document, add header and footer, also perform find replace operation and define bookmarks.

2. Preparing documents with special effects and adding new Symbols and frames.

3. Preparing documents with inserts pictures objects and database.

4. Preparing lables.

5. Preparing the documents in newspaper column layout.

6. Perform mail merger operation and preparing labels.

7. Type the text, change the font size at 20. Align the text to left, right and justify & centre and underline the text.

8. Prepare a job application letter enclosing your bio-data.

9. Demonstrate OLE concept by linking an excel worksheet into a work document.

10. Type the text, check spelling and grammar, bullets and numbering list items.

MS EXCEL

11. Entering and printing worksheet
12. Worksheet Using formulas
13. Worksheet Manipulation for electricity bill preparation
14. Drawing graphs to illustrate class performance
15. An excel worksheet contains monthly Sales Details of five companies.

MS POWER POINT

16. Prepare a power point presentation with at least three slides for department inaugural function.
17. Draw an organization chart with minimum three hierarchical levels.
18. Design an advertisement campaign with minimum three slides.
19. Insert an excel chart into a power point slide.
20. Prepare a Power point presentation for any shop.

SEMESTER: I

PROGRAMMING IN C LAB

Total hours : 60hrs **Hrs / week: 3**

Sub. Code : **Credit :**

2

1. Standard Deviation
2. Prime Number
3. Adam Number
4. Armstrong Number
5. Perfect Number
6. Pascal Number
7. Multiplying Two matrices & Transpose Of The Matrix
8. Sum Of The Digit
9. Reverse The Digit
10. Sin Series, Cos Series
11. Quadratic Equation Using Switch
12. Magic Square
13. Program for factorial
14. Perfect number checking

SEMESTER: II

PROGRAMMING IN C++

Total hours: 60hrs **Hrs / week: 3**

Sub. Code: **Credit : 3**

AIM:

To learn the concepts of object-oriented programming techniques, streams and using Files.

UNIT I:

Principles of Object Oriented Programming (OOP): Software Evolution - OOP Paradigm - Basic Concepts of OOP - Benefits of OOP - Object Oriented Languages - Applications of OOP.

Tokens, Expressions and control structures: Tokens, Keywords, Identifiers and constants, Data types- Variables, Operators, Manipulators, Expressions and Control Structures.

UNIT II:

Functions in C++: Main Function - Function Prototyping – Call by reference – Return by reference - Inline Functions – Function Overloading.

Classes and Objects: Specifying a Class- Defining member function – A C++ program with class – Making an Outside Function inline – Nesting of member function – Private Member functions – Array within a class – Memory Allocation for objects – Static member data and functions- Array of objects – Object as function argument – Friendly function – Returning objects.

UNIT III:

Constructors and Destructors: Constructors – Parameterized constructors –Multiple constructors in a class Constructor with default

argument-Dynamic initialization of objects – copy constructor – Dynamic constructor.

Operator Overloading and Type Conversions : Introduction – Defining Operator Overloading – Overloading Unary operator – Overloading Binary operator- Overloading Binary operator using friends- Manipulation of string using operator- Rules for overloading operators - Type of Constructors.

UNIT IV:

Inheritance: Introduction - Single Inheritance - Multilevel inheritance - Multiple inheritances - Hierarchical Inheritance - Hybrid Inheritance – Virtual base class. **Pointers, Virtual Functions and Polymorphism**: Introduction – Pointer to object – this pointer – Pointer to derived class – virtual function – Pure virtual function.

UNIT V:

Managing Console I/O operations: Introduction – Unformatted I/O operations – Formatted console I/O operations – Managing Output with manipulators.**Working with Files**: Classes for File Stream Operations - Opening and Closing a File - End-of-File Detection - File Pointers - Updating a File - Error Handling during File Operations - Command-line Arguments.

TEXT BOOK: 1.“ Object Oriented Programming with C++” by E. Balagurusamy,

UNITS COVERED:

- **UNIT I:** Ch 1: 1.2; 1.4-1.8; Ch 3: 3.2 - 3.24,
- **UNIT II:** Ch 4: 4.2-4.6; 4.9;Ch 5:5.3-5.6,
- **UNIT III:** Ch 6:6.2-6.8; Ch7: 7.1- 7.8,
- **UNIT IV:** Ch 8: 8.1; 8.3-8.9;Ch 9 : 9.1 – 9.6,
- **UNIT V:** Ch 10: 10.1- 10.6; Ch 11- 11.2-11.10

REFERENCE BOOKS:

1. Object Oriented Programming in Microsoft C++, Galgotia publication by Robert Lafore.

2. C++: The Complete Reference, TMH Edition, 1998 by H.Schil

SEMESTER: II

UNIX

Total hours: 60hrs **Hrs / week: 3**

Sub. Code : **Credit : 3**

AIM:

To help the students understanding the basic concepts of UNIX.

UNIT I:

Getting started: The UNIX Operating system – Unix Architecture – Features of Unix – man. **General purpose utilities**: The Calendar , Date , echo, bc, who.

UNIT II:

The file system: The file – The Parent Child Relationship – Directory COmmads – Path names – listing directory contents – The Unix File system

Handling Ordinary files : Displaying and creating files – copying a file – deleting files – Renaming file – Counting Lines, Words and Characters – Comparing two files – comm.

UNIT III:

Basic file attributes : File ownership – file permissions – changing file permissions – changing file ownership.

UNIT IV:

The vi Editor : vi Basics – Input mode – saving text and quitting – navigation – editing text**.**

The shell: The Shell's Interpretive cycle – Pattern matching – Redirection – tee – Shell variables.

UNIT V:

The process : Process Basics – Process Status. Simple filters : head, tail, cut, paste, sort. Filters using Regular Expression : grep , egrep.

TEXT BOOK:

1. "UNIX CONCEPTS AND APPLICATIONS" by SUMITABHA DAS Third Edition – Tata McGraw – Hill Publishing Company Ltd.

UNITS COVERED:

- **UNIT I** : Chapters 1,2,3,4
- **UNIT II** : Chapters 5,6
- **UNIT III** : Chapters 7
- **UNIT IV** : Chapters 8 , 9
- **UNIT V** : Chapters 10, 14, 15

REFERENCE BOOKS:

1. "Unix Programming" second edition RPB Publications by P.sudharson.

2. "Unix Network Programming" by W. Stevens, Bill Fenner, Andrew Rudoff.

SEMESTER: II

STATISTICS

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 5**

AIM:

To enable the students to learn the Statistical methods and their applications in Commerce.

UNIT I:

Meaning and Definition of Statistics – Functions of Statistics- Limitations of Statistics- Classification- Objectives of Classification- Types of Classification - Measures of Central tendency – Mean Median, Mode, Geometric Mean and Harmonic Mean –simple problems.

UNIT II:

Measures of Dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation and Co-efficient of Variation.

UNIT III:

Correlation –Meaning and Definition –Scatter diagram, Karl Pearson's co-efficient of Correlation, Spearman's Rank Correlation, Co-efficient of Concurrent deviation.

UNIT IV:

Regression Analysis – Meaning of regression – Uses of Regression Analysis -Regression in two variables: X on Y and Y on X.

UNIT V:

Index Numbers – Meaning and Uses of Index Numbers - Methods of Index Numbers: Un-weighted(Simple aggregate and Simple Average Price relative)-Weighted Aggregate index numbers(Laspeyre's, Paache's, Bowley, Fisher's and Marshall-Edgeworth Method) – Tests of an Index number: Time Reversal Test and Factor Reversal Test – Cost of living index Number (Aggregate expenditure method and Family Budget Method) Simple Problems only.

TEXT BOOK:

1. " Business Statistics" by Dr.K.Alagar, The McGraw.Hill Companies.

UNITS COVERED:

- **UNIT I:** Chapter 1, 3,6
- **UNIT II:** Chapter 7
- **UNIT III:** Chapter 9
- **UNIT IV:** Chapter 10
- **UNIT V:** Chapter 11

REFERENCE BOOKS:

1. "Statistics" by R.S.N.Pillai, Bagavathi

2. “Statistical Methods” by S.P. Gupta

SEMESTER: II

UNIX LAB

Total hours: 60hrs **Hrs / week: 3**

Sub. Code : **Credit : 2**

1. Unix basic commands and functions
2. Unix Directory commands
3. Unix file manipulation commands
4. Unix filter commands
5. Unix Pattern searching commands
6. Program to reverse the given string
7. Program to find sum of digits
8. Program to find factorial of given number
9. Program to Generate Fibonacci series
10. Program to generate multiplication table
11. Program to print even numbers
12. Program to check Armstrong number or not
13. Program to Prepare Mark list
14. Program to compare strings
15. Program to calculate Power of given value

SEMESTER: II

PROGRAMMING IN C++ LAB

Total hours: 60hrs **Hrs / week: 3**
Sub. Code: **Credit : 2**

1. Inline function
2. Swapping two values
3. Program for manipulators
4. Function overloading
5. Data conversion
6. Single inheritance
7. Multiple inheritance
8. Multi level inheritance
9. Multi path inheritance
10. Hybrid inheritance

SEMESTER: III

DATABASE MANAGEMENT SYSTEM

Total hours: 60hrs **Hrs / week: 3**
Sub. Code: **Credit : 3**

AIM:

To enable the students to learn the architectural Concept, Structural Embedded SQL and web databases.

UNIT I:

Introduction to Database Management Systems - Types of Database Management Systems-SDLC-DDLC-Introduction to RDBMS-Codd's Rule-Levels of Database Models.

UNIT II:

E-R-Model–Components–ERDiagram-Relaionship-Data Normalization:First normal form(1NF)-Second normal form(2NF)-Third normal form(3NF)-Fourth normal form(4NF) - Relational Algebra and Relational Calculus.

UNIT III:

Introduction to SQL-Tables, Views and Indexes-Queries and Sub Queries-Aggregate functions.

UNIT IV:

Cursors-Programming with SQL-Embedded SQL-Query-By-Example-QUEL-Triggers-Query Processing-Transaction Properties and states.

UNIT V:

Backup & Recovery – Databae Backup- Tansaction logs-importance of backup-databse recovery-recovery facilities,techniques-Web Databases-KDD-Features-advantages-KDD Techniques.

TEXT BOOK:

1. Database Management Systems – Alexis Leon Mathews Leon

REFERENCE BOOKS:

1. Raghu Ram Krishnan, "database Management Systems", McGraw-Hill, publishing company, 1998.

2. Database System Concepts-Abrahamsilberschatz

SEMESTER: III

COMPUTER ORGANIZATION

Total hours: 60hrs **Hrs / week: 3**

Sub. Code: **Credit : 3**

AIM:

To enable the students to learn the basic functions of computer organization and architecture.

UNIT I:

The elements of computers- the evolution of computers – generation of computers - Logic gates- Flip flops- Register transfer – Register transfer language - Arithmetic micro operations-logic Micro operations.

UNIT II:

Basic Computer Organizations - Instructions codes- Computer registers- Computer Instructions -Timing & Control- Instruction cycle-Memory reference Instructions.

UNIT III:

CPU- General register organization-Stack organization-Instruction Formats-Addressing modes- Parallel processing-Pipelining-Arithmetic pipeline-Instruction pipeline- Vector processing- Array processors.

UNIT IV:

Computer Arithmetic-Addition, Subtraction, Multiplication, Division Algorithms- Direct memory access.

UNIT V:

Memory Organization**:** Memory hierarchy-Main memory-auxiliary memory-Associative memory-Cache memory-virtual memory-Multiprocessors-Characteristics of multiprocessors.

TEXT BOOK:

1. "Computer System Architecture"- M. Morris Mano, Prentice hall of India.

UNITS COVERED:

- **UNIT I** - Chapters-1, 4
- **UNIT II** - Chapter-5
- **UNIT III** - Chapters-8, 9
- **UNIT IV** - Chapters-10, 11
- **UNIT V** - Chapters-12, 13

REFERENCE BOOK:

1. John P. Hayes, "Computer Architrave and Organization", McGraw hill.
2. "Structured computer Organization"- Andrew s. Athenaeum Prentice hall of India.

SEMESTER: III

FINANCIAL AND MANAGEMENT ACCOUNTING

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 5**

AIM:

To prepare prospective managers with a skill to understand the basic principles of Financial and Management Accounting

UNIT I:

Accounting Principles, Concepts and conventions-Double entry book keeping-Journal, Ledger, Trial balance and Financial accounts of Sole trader concern (simple adjustments only)

UNIT II:

Ratio Analysis –Meaning, Advantages and Limitations-Solvency Ratios-Profitability Ratios-Activity Ratios only (simple problems)

UNIT III:

Fund flow and Cash flow analysis-Meaning and need-Preparation of fund flow and Cash flow statements-Uses and Limitations- Preparation of Cash flow Statements (simple problems)

UNIT IV:

Meaning of Cost accounting - Objectives - Elements of Cost - Cost sheet-Inventory management: Purchase Procedures – EOQ - Stock Levels (Simple problems only)

UNIT V:

Budgetary control-Meaning-Merits and Demerits- Types of Budget and its Utility – Preparation of cash and Flexible Budget (Simple problems only)

TEXTBOOK:

1. "Management Accounting" – P.S.Boopathi Manickam (Unit I)
2. "Management Accounting" - Dr.Peer Mohamed, Dr.Shazuli Ibrahim (Unit II -V)

REFERENCE BOOK:

1. Maheswari, S.N Principles of Financial Managements, Sultan Chandand sons, NewDelhi, 1996.

SEMESTER: III

ORACLE LAB

Total hours: 60hrs **Hrs / week: 3**

Sub. Code: **Credit : 2**

1. Data Definition Language (DDL) commands in RDBMS.
2. Data Manipulation Language (DML) commands in RDBMS.
3. Data Control Language (DCL) commands in RDBMS.
4. High level language extension with Cursors.
5. High level language extension with Triggers.
6. Creating Tables for Different Applications using DDL.
7. Create a Table and solving the queries using Date Functions.
8. Create a Table and solving the queries using Numeric Functions.
9. Create a Table and solving the queries using Group Functions.
10. Set Operators – Union, Union All, Intersect, Minus
11. Join Concept – Simple Join, Table Aliases, Self Join, Outer Join
12. Sub Queries
13. Multiple Queries
14. Creating PL/SQL block using all the control statements

15.Creating PL/SQL block using EXPLICIT & IMPLICIT CURSOR

SEMESTER: III

TALLY LAB

Total hours: 60hrs **Hrs / week: 3**
Sub. Code: **Credit : 2**

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i) Create company with some particulars

a. Alter a company with the particulars of:
   i. Name : Info tech
   ii. Financial year : 1-4-2005
   iii. Local sales tax no : TN 12345

ii) Create Groups for the following,

a. Plant & Machinery
b. Buildings
c. Sundry debtors
d. Loans
e. Salaries

iii) Create the following ledgers,

a. Capital
b. Sales Tax
c. Rent received
d. Purchase
e. Sales

iv) Create vouchers for the following,

a. (i) Carriage inwards 1000/-
b. (ii) Rent 500/-
c. (iii) Capital 25000/-
d. (iv) Sales 1,00,000/-
e. (v) Purchase 50,000/-

v) Prepare Profit & loss A/C:

vi) Prepare Ratio analysis statement

vii) Prepare Trial balance

viii) Prepare Balance Sheet

ix) Prepare Statistics Statement

x) Cheque Printing

xi) Prepare Bank Reconciliation Statement

xii) Create Stock group.

xiii) Creation and Allocation of Cost center.

xiv) Create Budget.

Non Major Elective (1): Office Application Software

Semester:III **Hrs/Week: 2**

Sub code: **Credit : 2**

UNIT I:

Technology Fundamental- Introduction to computing – Basic components of computer system – Characteristics and classifications of computer – Generation of computer – Data representation – Number systems

UNIT II:

Introduction to MS word – Word Editing a document – Move and copy text – Formatting text & Paragraph – Enhancing document – Columns, Tables and other features.

Introduction to MS Excel -Worksheet and shell – Getting started with Excel – Editing cell & using commands and function- Moving & Copying, Inserting & Deleting Rows & Columns – Printing worksheets – creating charts –Naming ranges using statistical, math and financial functions.

UNIT III:

Introduction to MS Power point – Overview of Power point – Slide show.

Introduction to Internet concepts – World Wide Web – Advantages of Internet – Internet software – Electronic mail.

TEXT BOOK:

1. MS Office 2000 for everyone – Sanjay Saxena.

REFERENCE BOOKS:

1. Introduction to Information Technology – ITL Education Solution
2. Fundamentals of Information Technology – Alexis Leon, Mathews Leon

SELF STUDY PAPER

SECURITY IN COMPUTING

Semester : III **Hrs/Week: -**

Subject Code: **Credit :5**

UNIT I:

Elementary Cryptography: Terminology and Background – Substitution Ciphers – Transcription (Permutations)- Making "Good" Encryption

Algorithms – The Data Encryption Standard (DES)- The AES Encryption Algorithm – Public Key Encryption-The Uses of Encryption

UNIT II:

Program Security: Secure programs – Non malicious program errors- Viruses and other malicious code- Targeted Malicious code- Controls against Program Threats.

UNIT III:

Protection in General – Purpose Operating System: Protected objects and methods of protection – Memory and Address Protection – Control of Access to General objects – File Protection Mechanisms – User Authentication.

Designing Trusted Operating Systems: What is trusted system? – Security policies – Models of security – Trusted Operating System Design.

UNIT IV:

Database Security: Introduction to Database – Security Requirements – Reliability and Integrity – Sensitivity Data- Inference – Multilevel Databases – Proposals for Multilevel Security.

UNIT V:

Security in networks: Network Concepts – Threats in networks – network security controls – Firewalls – Intrusion reduction systems – Secure E-Mail.

REFERENCE BOOKS:

1. Security in computing – Third Edition , Charles P.Fleeger, Shari Lawrence P.Fleeger , PHI 2005

2. Cryptography and Network Security – Behrouz A.Forouzan, The Mc Graw Hill, 2008
3. Cryptography and Network Security – William Stallings, PHI, 2008

SEMESTER: IV

WEB TECHNOLOGY

Total hours: 60hrs **Hrs / week: 3**
Sub. Code: **Credit : 3**

AIM:

To highlight the features of different technologies involved in Web Technology and various Scripting Languages.

UNIT I:

History of the Internet- internet applications & uses - Internetworking with TCP/IP-IP Address-DNS-Protocols-SMTP-FTP-POP-UDP-Gopher-HTTP-WWW-Web Browser-URL-IIS.

UNIT II:

HTML Structure-Head section-Body Section-Basic Paragraph-Style Tag-Color Values-Hyper Links-images-Tables-Audio-Video-Forms-Frames-Image Mapping-DHTML-Cascading Style Sheet-types of CSS-XHTML

UNIT III:

JAVASCRIPT:Introduction-Identifiers-Expression-Datatypes-Keywords-Operators-Statements-Functions-Objects of JavaScript:-Window object, Document Object-Events-Other Objects-Date, Math, String-Regular Expressions-I/O Built in Function.

UNIT IV:

VB SCRIPT: Introduction –Embedding VB Script into HTML Document -Comments-Variables-Operators-Procedures-Conditional Statement-Looping statements-Intrinsic HTML Form controls- Button controls

UNIT V:

ASP : Creation of ASP-Advantages of using ASP-First ASP Script-processing of ASP script with forms-cookies-creating a cookies-Retrieving a cookie values-ASP Objects-Responds ,Request Objects-Database and Servers**:** IIS-Apache-proxy servers-Real Audio and Video in the network- 3D Animation Technology-VRML

TEXT BOOK:

1. "Web Technology"– N.P.Gopalan, J.Akilandeswari

UNITS COVERED:

- **UNIT I** - Chap 1, 2
- **UNIT II** - Chap 4
- **UNIT III**-Chap 5
- **UNIT IV**-Chap 6
- **UNIT V**-Chap 12

REFERENCE BOOKS:

1. J. Jaworski, Mastering JavaScript, BPB Publications, 1999
2. T. A. Powell, Complete Reference HTML (Third Edition),

SEMESTER: IV

JAVA PROGRAMMING

Total hours: 60hrs Hrs / week: 3
Sub. Code: Credit : 3

AIM:

To learn about the Oops concept and to understand the basics of Java programming.

UNIT I:

Fundamentals of OOP : Object oriented paradigm – basic concepts – benefits and application, J**ava Evolution :** Java history – java features - java environment, **Overview of Java Language:** Simple Java program and structure – Java Tokens, Constants - Variable - Data types – Operators and expressions- **Decision Making and Branching :** if statement- if-else – else if – switch-conditional operator, **Decision making and looping :** while - do-while - for loop.

UNIT II:

Class, Objects and Methods: Defining a class – Methods declaration - creating objects - constructors -Method overloading – Inheritance - overriding methods, **Array :** creating an array - types - Strings – Wrapper classes, **Interfaces- Packages:** Java API packages – creating packages – using a package, **Multi Threaded Programming:** Introduction- Creating threads- Extending the thread class – Life cycle of a thread- Thread priority.

UNIT III:

Managing errors and exceptions: Types of errors – Exceptions – Syntax of exception handling code - Multiple catch statement - using finally statements- throwing our own exception, **Applet programming:** How applet differ from applications – Applet Life Cycle - Applet Tag – More about applet tag.

UNIT IV:

Graphics : Drawing Lines - Rectangles – Ovals -Arcs and Polygons. **Swing:** Introduction to JFC – JApplet- JLabel and ImageIcon – JButton – JList – JComboBox – Jcheckbox and JTextArea. **File Handling:** The file class – Byte stream classes – Character stream classes – Random access file – More about stream.

UNIT V:

Networking: Introduction – TCP/IP – UDP/IP – Difference between TCP and UDP – IPAddress – DNS –Port – URL, **JDBC:** Introduction – Database Connectivity – ODBC API - JDBC API – JDBC Application Architecture – Obtaining a connection – Steps for creating the ODBC DSN – The Statement Object – Working with ResultSet.

TEXT BOOKS:

1. E. Balagurusamy, “Programming with Java” Fourth edition, McGraw Hill

2. R.Krishnamoorthy & S.Prabhu, “Internet & JAVA Programming”, New Age International Publishers.

REFERENCE BOOKS:

1. Naughton. P and Schildt. H,” Java 2: The Complete Reference”, TATA McGraw Hill Publishing Company Ltd., New Delhi.

2. Bernard Van Jaecke, “JDBC: Java Data Base Connectivity”s, IDG Books India (PLtd) – NewDelhi.

SEMESTER: IV

OPERATIONAL RESEARCH

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 5**

AIM:

• Improving management skills by applying management theories in real life
• Preparing a basic Marketing Plan
• Understanding and Interpreting Financial Statements

UNIT I :

Introduction of O.R-Definition, Characteristics, Methodology, Application of O.R, uses and limitation of O.R

L.P.P. – Formulation of L.P.P. – Graphical Method –Basic Solution – BFS –

Simplex method.

UNIT II:

Transportation Model – Mathematical Formulation of Transportation Problem – Methods for Finding IBFS – NWC – LCM – VAM – MODI Method – Degeneracy – Unbalanced – Maximization Case in Transportation Problem.

UNIT III:

Assignment Problem – Mathematical Formulation of Assignment Problem – Comparison with Transportation Model – Difference between the Transportation and Assignment Problem – Hungarian Method

Unbalanced Assignment – Maximization Case in Assignment – Restriction in Assignment – Traveling Salesman Problem.

UNIT IV:

Game Theory – 2X2 Game – Maximin – Minimax Principle – Saddle Point and Value of Game – Game without Saddle Point – Arithmetic Method – 2Xn –mX2 – Graphical Method – Dominance Property.

UNIT V:

Scheduling by PERT and CPM – Planning – Scheduling – Control – Basic Terminologies – Rules for Constructing a Project Network – Network Computation – Compute the Latest Finish and Latest Start – Float – Program Evaluation Review Technique – Difference Between PERT & CPM.

TEXT BOOK:

1. "Resource Management Techniques" by Prof.V.Sundaresan,

UNITS COVERED:

- **UNIT I** - Chapters-1, 2, 3

- **UNIT II** - Chapter- 7
- **UNIT III** - Chapters-8
- **UNIT IV** - Chapters-16
- **UNIT V** - Chapters-15

REFERENCE BOOKS:

1. "Operation Research: An Introduction", Hamdy. A, Taha, Macmillan International Student's Edition, Delhi.
2. "Operation Research", Kanti Swarup, R.K. Gupta and Manmohan, Sultan Chand and Sons, Delhi.

SEMESTER: IV

WEB TECHNOLOGY LAB

Total hours: 60hrs **Hrs / week: 3**
Sub. Code: **Credit : 2**

1. Create Yadava College website using HTML tags.
2. Create Mark sheet preparation using HTML.
3. Creation of webpage using marquee tag
4. Link the webpage using Hyper Link Tag
5. Creation of Bio Data Form using Form Tag
6. Creation of Railway Reservation form using Form tag
7. Display the images in webpage using image tag
8. Create two division frame web page
9. Create three division frame web page using Frame tag
10. Create a web page using Audio and Video Tags
11. Reverse the word using vbscript
12. Employee details using vbscript
13. Student details using vbscript
14. Check the number is prime or not using java script
15. Convert the decimal number into binary using java script

SEMESTER: IV

JAVA PROGRAMMING LAB

Total hours: 60hrs **Hrs / week: 3**

Sub. Code: **Credit : 2**

1. Program for Printing series using loop
2. Implementing Command Line Argument
3. Program for Multiplication table
4. Program for calculating Adam number
5. Program for calculating Arithmetic operations using switch case

6. Program for Sorting a list of numbers using array
7. Program for Method Overloading
8. Program for Constructor Overloading
9. Program using String buffer
10. Implementing Single Inheritance
11. Implementing Interface
12. Importing user-defined package
13. Program for Multithreading
14. Program for Exception handling
15. Program for Throwing our own exception
16. Displaying text using Applet
17. Program for Fill-circle using Applet
18. Applet program for key event
19. Program to display Human face using graphics programming
20. Program Using File Reader and Writer class

Non Major Elective(2): Publication Software System

Semester:IV **Hrs/Week : 2**

Sub code: **Credit : 2**

Unit I:

Introduction to Designing – Adobe page maker – Publishing Layouts- Books / Magazines/Visiting cards – Advertisement – Bill books – Newspapers- Calendar- Tabular column – Ledger Books – Print methods.

Unit II:

Introduction to Corel draw – Designing and drawing – 2D Shapes – Logo – Emblem – Advertisement Layouts- Filters – Special Effects – Color fill- brochures.

Unit III:

Introduction to Adobe Photoshop – Image editing – Brochures – Logo – Image and color correction – photo print – B & W and Color process – wrapper Designs.

Text Book:

1. Comdex DTP Course kit – Vikas Gupta, Publisher Dream tech press.

Reference Book:

1. DTP Course – 5th revised edition Singh & Singh computech publication limited

SELF STUDY PAPER

PC HARDWARE AND INTERFACING

Semester : IV **Credit:5**

Subject Code:

Unit I:

8086 family – 8086 based system design : System components – bus controller , clock generator, address decoding , bus buffering and demultiplexing.

Unit II:

Hardware organization of IBM PC: Motherboard components – Chipset Super I/O , System timer and RTC.

Unit III:

Memory : Memory organization , memory map- Memory Techniques – Pipelining, Cache, interleave, shadow RAM, Memory types, Memory expansion.

Unit IV:

I/O Buses: 8 bit ISA, 16 bit ISA, EISA, PCI , buses – PCI buses – pins and signals , Interfacing examples, PCMCIA and AGP.

Unit V :

Parallel port – Register organization, pins and signals , handshaking and programming of SPP, EPP and ECP modes – Serial port – Register , Pins and signals, Programming.

REFERENCE BOOKS:

1. N.Mathivanan 'Microprocessors PC Hardware and Interfacing ' PHI 2005
2. Bary B.Brey The INTEL Microprocessors 8086/8088, 80186/80188, 80286,80386, 80486, Pentium and Pentium pre processor, PHI 1997
3. D.V.Hall Microprocessors and Interfacing: Programming and Hardware, McGraw Hill,1999

SEMESTER: V

COMPUTER GRAPHICS

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 3**

AIM:

To enable the students to develop their creativity in computer graphics.

UNIT I:

Introduction to Computer Graphics – Video display devices- input devices- Graphics Software- GKS – PHIGS - Points & Lines- Line drawing algorithms-DDA algorithm and Bresenham's line algorithm.

UNIT II:

Character generations - Attributes of Output Primitives – Line - Curve- Area-fill – Character – Text - Marker - bundled attributes – Inquiry functions.

UNIT III:

2D Transformations-Translation – Rotation – Reflection – Scaling – Shearing –Viewing function – clipping-Cohen Sutherland line clipping – Sutherland Hodgeman polygon clipping- point- text- Exterior-Interior clipping operations.

UNIT IV:

3D Concepts- 3D Display Methods – 3D Graphics Packages- 3D Object Representations: Polygon Surfaces – Curved lines and Surfaces – Quadric Surfaces – Super quadrics – Blobby Objects.

UNIT-V:

Color Models- Properties of Light – RGB Color Model – YIQ Color Model – CMY Color Model – HSV Color Model – Color selection and Applications.

TEXT BOOK:

1. "Computer Graphics" - Donald Hearn & Pauline Baker, Publication of Prentice Hall of India.

UNITS COVERED:

- **Unit I** - Chapters-1, 2, 3
- **Unit II** - Chapters-3, 4
- **Unit III** - Chapters-5, 6
- **Unit IV** - Chapters-9, 10
- **Unit V** - Chapters-15

REFERENCE BOOK:

1. "PRINCIPLES OF INTERACTIVE COMPUTER GRAPHICS" – William M. Newman & Robert F. Sproull, 2007, TMH.

SEMESTER: V

SOFTWARE ENGINEERING

Total hours: 60hrs **Hrs / week: 4**

Sub. Code: **Credit :3**

AIM:

This subject deals with Software Engineering concepts like Analysis, Design, Implementation, Testing and Maintenance.

UNIT I:

Introduction to Software Engineering: Definitions – Size Factors – Quality and Productivity Factors. **Planning a Software Project:** Planning the Development Process –Planning an Organizational Structure.

UNIT II:

Software Cost Estimation: Software cost Factors – Software Cost Estimation Techniques-Expert Judgement method-delphi cost estimation-work breakdown structure-COCOMO Method.

UNIT III :

Software Requirements Definition: The Software Requirements specification –Formal Specification Techniques. **Software Design:** Fundamental Design Concepts –Modules and Modularization Criteria.

UNIT IV:

Design Notations – **Verification and Validation Techniques:** Quality Assurance – Walkthroughs and Inspections.

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UNIT V:

Unit Testing and Debugging – System Testing. **Software Maintenance:** Enhancing Maintainability during Development – Managerial Aspects of Software Maintenance – Configuration Management.

TEXTBOOK:

1.“Software engineering concepts” – Richard Fairley, 1997, TMH.

REFERENCE BOOK*:*

1. “Software engineering” – Pressman IV edition

SEMESTER: V

DATA STRUCTURE

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 3**

AIM:

1. To learn about the Algorithm.
2. To understand the different methods of organizing large amounts of data.
3. To gain knowledge about the implementation of the different data structures.

UNIT I:

Introduction: Data structure –Data structure operation, **Preliminaries:** Mathematical notation and function - Algorithmic Notation – control structures- Complexity of Algorithms - sub algorithms - variables, Data types.

UNIT II:

String processing: Introduction – Basic terminology - storing string-character Datatype - string operations. **Arrays:** Introduction-linear arrays - Traversing linear arrays - inserting and deleting - multidimensional arrays – pointer array - matrices.

UNIT III:

Linked lists: Introduction – representation of linked lists in memory - traversing a linked list – searching a linked list – Memory allocation - garbage collection-insertion into a linked list- deletion from a linked list-header linked lists.

UNIT IV:

Stacks: Introduction-array representation of stacks- linked representation of stacks- insertion and deletion in stack - quick sort, an application of stacks - recursion – **Queues:** Introduction – linked representation of queues – deques – priority queues.

UNIT V:

Trees: Introduction – Binary Tree - Traversing binary tree - Binary trees – Binary search trees – searching in a binary search tree - inserting and deleting in a binary search tree – AVL search trees – insertion and deletion in an AVL search tree - B Trees.

TEXT BOOKS:

1. Seymour lipschutz, "Data structures", The Mc-GrawHill Companies

2. Alfred V.Aho, JohnE.Hopcroft, and Jeffery D.Ullman, "Data Structures & algorithms", Adison Wesley.

REFERENCE BOOKS:

1. Robert L.kruse, "Data structures and program design", prentice hall of India, 3rd edition.

SEMESTER: V

VB.NET

Total hours: 60hrs **Hrs / week: 4**

Sub. Code: **Credit : 3**

AIM:

To make the students expertise in .Net environment

UNIT I:

Introducing .Net - .Net Framework Overview , Common Type System, Common Language Specification , Common Intermediate Language, Just in Time Compiler , Virtual Execution System, .Net Framework Class Library , Namespace, Languages in .Net, Visual Studio .Net, Data types and Operators –

Literal, Variables, Data types, Declaration of Variables, Constant, Statements, Operators: Arithmetic Operators, Concatenation Operators, Relational Operators, Compound Assignment Operator, Logical Operator, Bit wise Operators, Keywords, Comments, Scope of Variables, Console Applications in VB.NET.

UNIT II:

Control Statements – IF Statement, Block – if, Nested if, Looping, Select-case statement, Goto Statement, Early exit from control statements, Intrinsic Control list, Form Control, Events, Label, Text Box, Group box Control, Check Box Control, Radio Button Control, VB code for Radio Button and Text Box Control, Scroll Bar Control, Ctype, Track Bar, Timer, Picture Box, Working with Mouse Input, Link Label, Date Time Picker, Month Calendar. Arrays – One dimensional Array, Array Initialization, Printing array elements using For each … Next Loop, Redim statement, Multidimensional array, Initialization of 2 dimensional Array, Arrays of array, List Box Control, Combo box control.

UNIT III:

Procedures and Structures – subroutine Procedure, Function Procedure, Property procedure, Functions, Value returned by its function name, The return statement, Calling a functions, Call by reference, Functions with Arrays, Functions with Param Arrays, Function Overloading, Sub-Procedure, Invoking a sub Procedure, Structure, Giving values to structure elements, Functions inside the structure, Nested structures Message Box function, Input Box function. Files – Introduction to Files, Classification of Files, Generic Procedure of Processing Files, Handling Files and Folders using Functions, Handling File and Folders using Classes, Directory class, File class, File and Folder Manipulation Application, File processing using Functions, File processing using streams, Project File Processing.

UNIT IV:

Creating menus and using Dialog boxes – Menu, MDI Forms, Context Menu, Rich Textbox, Color Dialog Control and Font Dialog Control. Object Oriented Concepts in VB.NET – Boxing and Un boxing, Read-only and Write –

only properties, Adding methods to classes, Classes with constructor. Namespaces, Inheritance, Overriding properties and Methods, Shadows statement, Polymorphism.

Events, Delegates and Exception Handling- Events in class, Delegates, single cast Delegate, Multicast delegates, Exceptions, Try, Catch, Finally, End try, Try – catch Multiple catch, Nested try statements try-finally.

UNIT V:

Data Access with ADO.NET - Database, Relational Database, Table Creation, Record Insertion, Displaying Data, Deleting Data, Modifying Data, Drop Table, Special Features of ADO.NET, Differences between ADO and ADO.NET, Connection, Commands, Data Reader, Data set, Using a Data Grid, Using Data Adapter configuration wizard, XML andADO.NET, XML Document to ADO.NET Data, Filtering data using Data view, Complex data binding, Command parameters property, Using stored procedures with a command.

TEXTBOOK:

1. VB.NET – P.Radhaganesan SCITECH Publications(INDIA) Pvt .Ltd.

REFERNCE BOOK:

1. Visual Basic.NET- Shirish Chavan

SEMESTER: V

DATA STRUCTURE LAB

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 2**

1. Program to sort numbers in ascending order.
2. Program for three dimensional array.
3. Program to insert and delete elements in a linear array.
4. Program to illustrate joining of strings.
5. Program to find a letter in a string.
6. Program to find a word in a string using string function.
7. Implement PUSH, POP operations of stack using Arrays.
8. Implement insertion, deletion operations using linked list.
9. Program for linear array operations.
10. Implement add, delete operations of a queue using Pointers.
11. Program for circular queue.
12. Program for single linked list.
13. Creation, insertion, and deletion in doubly linked list.
14. Binary tree traversals (in-order, pre-order, and post-order) using linked list.
15. Program to demonstrate binary search tree.
16. Program to find number of nodes, depth and leaves in a tree.
17. Program to demonstrate depth first search.
18. Program to demonstrate breadth first search.

SEMESTER: V

VB.NET LAB

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 2**

1. Program using structure and enum
2. Program using classes, methods, properties and read only property
3. Program for calculator program
4. Program using constructors, overload constructors and class events
5. Program using exception handling
6. Functions to perform various string operations
7. Program using .net built-in collection classes namely array list, bit array, hash tables, queue, sorted list, stack, collection, dictionary base.
8. Program using inheritance, constructors in inheritance
9. Program using overriding, abstract base classes, shared members and interface
10. Program using winForm controls
11. Program using streams and serialization
12. Program using database
13. Program to make a puzzle
14. Program for new component
15. Program for web application

SEMESTER: V

ELECTIVE I :(1) OBJECT ORIENTED ANALYSIS AND DESIGN

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 2**

AIM:

To understand the concepts of Object Oriented Analysis and Design.

UNIT I:

An Overview of Object Oriented Systems Development – Object Basics – Object Oriented Systems Development Life Cycle.

UNIT II:

Rumbaugh Methodology – Booch Methodology – Jacobson Methodology – Patterns – Framework s – Unified Approach – Unified Modeling Language – Use case – Class Diagram – Interactive Diagram – Package Diagram – Collaboration Diagram – State Diagram – Activity Diagram.

UNIT III:

Identifying use cases – Object Analysis – Classification – Identifying Object relationships – Attributes and Methods.

UNIT IV:

Design axioms – Designing Classes – Access Layer – Object Storage – Object Interoperability.

UNIT V:

Designing Interface Objects – Software Quality Assurance – System Usability – Measuring User Satisfaction.

TEXT BOOK:

1. Object Oriented Systems Development - Ali Bahrami (Unit I, III , IV , V).
2. UML Distilled - Martin Fowler (Unit II).

REFERENCE BOOK:

1. Introduction to Object Oriented Analysis and Design – Stephen R.Schach.
2. The Unified Modeling Language Reference Manual – James Rumbaugh, Ivar Jacobson, Grady Booch.

SEMESTER: V

ELECTIVE I :(2) MINIPROJECT

Total hours: 60hrs **Hrs / week: 4**

Sub. Code: **Credit : 2**

SEMESTER: V

ELECTIVE I :(3) MULTIMEDIA

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 2**

AIM:

To inculcate knowledge on Media, Text, Image, Audio, Video, animation

UNIT I:

Introduction: Objectives – History of Multimedia – Its market – Content copyright – Resources for multimedia developers – Types of products – Evaluation – Hardware Architecture – OS and Software – Multimedia Architecture – Software library – Drivers.

UNIT II:

Text and Graphics : Elements of Text – Text Data files – Using text in Multimedia Application – Hypertext – Elements of Graphics – Images and color – Graphics files and Application formats – Creating images for multimedia use –Using graphics in Application.

UNIT III:

Digital Audio and Video : Characteristics of sound and Digital audio – Digital Audio systems – MIDI – Audio file formats – Using Audio in Multimedia Applications – Audio for content – Background as video – Characteristics of digital video – digital video data sizing - Video capture and playback systems –computer animation.

UNIT IV:

Product design and Authoring tools: Building blocks – classes of products – Content organizational strategies – story boarding – Multimedia tool selection – Tool feature – categories of Authoring tools – selecting the right authoring paradigm.

UNIT V:

Multimedia - Internet and Development: Internet – HTML and web authoring – Multimedia considerations for Internet – Design considerations for web pages-Team approach – Structured Multimedia development.

TEXT BOOK:

1. "Multimedia Technology and Applications" – David Hillman-Galgotia Publications pvt. Ltd, 1998.

UNITS COVERED:

- **UNIT I** -Chapters-1, 2, 3
- **UNIT II** -Chapters-4, 5
- **UNIT III** -Chapters-6, 7
- **UNIT IV** -Chapters-8,9
- **UNIT V** - Chapters-10, 11, 12

REFERENCE BOOK:

1. "Multimedia making it works"- Tay Vaughan TMH, 1997

SEMESTER: VI

COMPUTER NETWORK

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 3**

AIM:

To inculcate knowledge on Networking concepts and technologies like wireless, broadband and Bluetooth.

UNIT I:

Introduction**:** Building a network – Requirements – Network Architecture – OSI – Internet – Direct Link Networks – Hardware building blocks – Framing – Error detection – Reliable transmission.

UNIT II:

Network fundamentals**:** LAN Technology – LAN Architecture – BUS/Tree – Ring – Star – Ethernet – Token Rings – Wireless.

UNIT III:

Network layer: Packet Switching – Switching and Forwarding – Bridges and LAN switches – Internetworking – Simple Internetworking – Routing.

UNIT IV:

Transport layer: Reliable Byte Stream (TCP) – Simple Demultiplexer (UDP) - TCP Congestion Control – Congestion Avoidance Mechanisms.

UNIT V:

Presentation layer and applications Presentation formatting – Data compression – Cryptographic Algorithms: RSA - DES — Applications – Domain Name Service – Email - SMTP – MIME – HTTP – SNMP.

TEXTBOOK:

1. “Computer Networks”, Tata McGraw Hill, 3rd Edition, 2001 by Andrew S. Tanenbaum.

REFERENCE BOOKS:

1. “Data and Computer Communications”, 5th Edition, PHI, 1997 by William Stalings.

SEMESTER: VI

OPERATING SYSTEM

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 3**

AIM:

To enable the students to learn the operating systems concept.

UNIT I:

Introduction: Operating system – Mainframe systems – desktop systems – multiprocessor systems – distributed systems – clustered systems - real time systems, **Computer system structures:** Computer system operation – I/O structure – storage structure – Network structure.

UNIT II:

Operating System Structures: System components – Operating system services - system calls - system programs, **Processes:** Process concept - Process Scheduling - Inter Process communication, **CPU Scheduling:** Basic concepts – scheduling criteria – scheduling algorithms.

UNIT III:

Process synchronization: Semaphores - Classical Problems of Synchronization - Critical Regions – OS Synchronization, **Deadlocks:**

Characterization - Methods for Handling Deadlocks - Deadlock Prevention – Deadlock Avoidance – Deadlock Detection - Recovery.

UNIT IV:

Memory Management: Background – swapping - Contiguous memory Allocation - Paging and Segmentation, **Virtual Memory:** background - Demand Paging – thrashing, **File System interface:** File concept – Access method - Directory Structures - Protection.

UNIT V:

I/O Systems: I/O Hardware – application of I/O Interface – kernel I/O subsystem - Transforming I/O to hardware operations, **Mass-storage structure:** Disk structure - disk scheduling - disk management - swap space management.

TEXT BOOK:

1. "Operating System Concepts", 6th Edn, by John Wiley & Sons A. Silberschatz, P.B.Galvin, Gagne.

REFERENCE BOOK:

1. “An Introduction to Operating System”, Second Edition, Addison Wesley by H.M. Deitel,

SEMESTER: VI

ELECTIVE II: (1) PHP

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 2**

AIM:

To enhance the knowledge on Php & Mysql concepts

UNIT I:

Introduction to PHP: Installation of PHP and MySQL- PHP configuration in IIS & Apache Web Server and features of PHP-Embedding PHP and HTML - Executing PHP and viewing in Browser- Data types- Operators- PHP variables- Comments in PHP

UNIT II:

Control Structures: Condition statements- If…Else- Switch- Loops- While- Do…While- For- Arrays in PHP- FORM element, INPUT elements- Validating the user input- Passing variables between pages- Passing variables through GET- Passing variables through POST- Passing variables through REQUEST

UNIT III :

Functions: Built-in functions- String Functions- Math Functions- Array Functions- User Defined Functions.

UNIT IV:

Sessions and Cookies: Concept of Session- Starting session-Modifying session variables- Un registering and deleting session variable- Concept of Cookies.

UNIT V:

Introduction of MySQL: Types of tables in MySQL- Query in MySQL: Select-Insert- Update,-Delete.-Truncate –Alias- Order By- Database connectivity of PHP with MySQL

TEXT BOOK:

1. “Core PHP Programming” by Leon Atkinson Pearson publishers

UNITS COVERED:

- **UNIT I** -Chap 1, 2
- **UNIT II**-Chap 3, 4, 5
- **UNIT III**-Chap 6, 7
- **UNIT IV**-Chap 8
- **UNIT V**-Chap 9

REFERENCE BOOKS:

1. "The Complete Reference PHP"- Stever Holzner McGraw Hill

2. "Beginning PHP 5.0 Database Christopher Scollo",- Harish Rawat, Deepak Thomas Wrox Press

SEMESTER: VI

ELECTIVE II: (2) ARTIFICIAL INTELLIGENCE

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 2**

. **AIM:**

This concept explains in detail about Artificial Intelligence.

UNIT I:

Introduction to AI-Foundation and history of AI-AI Problems and Techniques-Introduction to Intelligent agents-Problem spaces and searches-Blind search strategies: Breadth first, Depth first, Heuristic search Techniques-

Hill climbing-Best first-A* algorithm-AO* algorithm-Bi-directional search-Comparing search strategies.

UNIT II:

Logic based system - Review of Prepositional and First order logic-Logical inferences-Forward and Backward chaining-Introduction to Prolog-Unification and Resolution-Game playing-Minimax algorithm-Alpha beta pruning-Resolution.

UNIT III:

Programming in Prolog - Introduction-Syntax-Basic data structures-Lists-Structures and Trees-Recursion-Built-in-predicates-Example programs-Debugging prolog programs-Introduction to Uncertain Knowledge-Review of probability-Prior and Conditional Probability, Axioms of Probability-Baye's rule and its Applications-Belief network: Syntax and Semantics.

UNIT IV:

Planning-Introduction-Planning in situational calculus-Representation for planning-Partial order planning algorithm-Learning from examples-Discovery as Learning-Learning by analogy-explanation based learning-Neural nets.

UNIT V:

Principles of Natural Language Processing-Rule based system architecture-Expert systems-Knowledge acquisition concepts-AI application to robotics-current trends in intelligent systems.

TEXT BOOK:

1. Elian rich and Kevin Knight," Artificial Intelligence", Tata McGraw-Hill Publishing Limited, NewDelhi, 1995.

REFERENCE BOOKS:

1. "Artificial Intelligence", Addison Wesley, Third edition, 2000 by P.H.Winston

2. “Introduction to Artificial Intelligence and Expert System”, Prentice Hall, 1992 by Dan W.Patterson

SEMESTER: VI

ELECTIVE II: (3) SOFTWARE TESTING

Total hours: 60hrs **Hrs / week: 4**

Sub. Code: **Credit : 2**

AIM:

To enable the students to learn various software testing techniques

UNIT I:

Assessing Testing Capabilities and Competencies: Roles of Testing, Defect, Building a Software Testing Strategy: Computer System Strategic Risks, Economics of System Development Life Cycle, Establishing a testing Policy Structured Approach to testing, Test Strategy, Testing Methodology.

UNIT II:

Testing Strategies: White-box testing techniques - Statement Coverage – Branch Coverage – Condition coverage – Multiple condition coverage – Data flow coverage – Black box testing techniques – Boundary value Analysis – robustness tests – Equivalence partitioning – Levels of testing – Unit, Integration and System testing.

UNIT III:

Establishing a Software testing methodology : Verification & Validation – Functional and Structural Testing – Eight Considerations in developing Testing Methodologies- Testing software Installation – Testing Security

UNIT IV:

Determining Software Testing Techniques: Testing Techniques/tool selection process – Structural System testing techniques – Functional System Testing Techniques – Unit Testing Technique – Functional testing and analysis.

UNIT V:

Testing Client Server Systems – Testing rapid Application Development – Testing Web – Based Systems – Testing Off – the – Shelf Software –Testing a data Warehouse – Creating Test Documentation.

TEXT BOOK:

1. William E.Perry, "Effective Methods for Software Testing, Second Edition", John Wiley & sons, 2000

REFERENCE BOOKS:

1. "Software Engineering", Sixth Edition, McGraw Hill by Roger S.Pressman

2. "Software Testing in the Real World" by Edward Kit, Pearson.

SEMESTER: VI

PHP & MYSQL LAB

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 2**

1. Creating simple webpage using PHP
2. Use of conditional statements in PHP
3. Use of looping statements in PHP
4. Creating different types of arrays
5. Usage of array functions
6. Creating user defined functions
7. Creation of files
8. File manipulation using PHP
9. Creation of sessions
10. Creation of cookies
11. Creating simple applications using PHP
12. Creating simple table with constraints
13. Insertion, Updating and Deletion of rows in MYSQL tables
14. Searching of data by different criteria
15. Sorting of data
16. Usage of sub queries
17. Usage of aggregate functions
18. Working with set operators
19. Working with string, numeric and date functions
20. Database connectivity in PHP with MySQL

SEMESTER: VI

DIGITAL IMAGE PROCESSING USING MATLAB

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 2**

1. Display of Gray scale Images.

2. Histogram Equalization.

3. Non-linear Filtering.

4. Edge detection using Operators.

5. 2-D DFT and DCT.

6. Filtering in frequency domain.

7. Display of color images.

8. Conversion between color spaces.

9. DWT of images.

10. Segmentation using watershed transform.

SEMESTER: VI

ELECTIVE III: PROJECT

Total hours: 60hrs **Hrs / week : 6**

Sub. Code: **Credit : 5**

YADAVA COLLEGE

(* An Autonomous Co-Educational Institution*

****Accredited with "A" Grade by NAAC****

*****Affiliated to Madurai Kamaraj University*****)

Govindarajan Campus, Thiruppalai, Madurai – 625014.

DEPARTMENT OF INFORMATION TECHNOLOGY

POSTGRADUATE

CBCS (2015-2017)

COURSE CONTENT

M.SC (IT)

BLUE PRINT OF THE QUESTION PAPER

M.Sc. Information Technology

Section	Type of Questions	No. of Questions	No. of Questions to be answered	Marks of each Questions	Total
A	Short answer Questions	5	5	2	10
B	Paragraph type Questions (Open Choice)	8	5	4	20
C	Essay Type Questions (Either Or Choice)	5	3	15	45
Total					75

Evaluation Techniques

Title	Evaluation		Exam Duration	Total
	Internal	External		
Theory	25	75	3	100
Practical	40	60	3	100
Project	40	160	-	200

DEPARTMENT OF INFORMATION TECHNOLOGY

YADAVA COLLEGE (AUTONOMOUS)

CHOICE BASED CREDIT SYSTEM SYLLABUS PLAN (2015-2017)

POST GRADUATE PROGRAMME

M.Sc. INFORMATION TECHNOLOGY

Semester	Part Code	Subject Code	Title of the Paper	Teaching	
				Hours	Credits
I	Core Paper		Principles of Information Technology	4	4
			Programming in C and C++	4	4
			Relational Data Base Management System	4	3
			Operating System	4	3
			Quantitative Methods	4	3
	Core Lab I		Programming in C and C++ lab	5	2
	Core Lab II		Oracle Lab	5	2
II	Core Papers		Data structures and Algorithms	4	4
			Web Technology	4	4
			Data Communications and Networking	4	3
			Compiler Design	4	3

	Core Lab III		Data structures Lab	5	2
	Core Lab IV		Web Technology lab	5	2
	Elective I		1. Resource Management Technique 2. System Software 3. Artificial Intelligence	4	5
III	Core Papers		Advanced java	4	4
			Multimedia	4	4
			Software Engineering	4	3
			.Net Programming	4	3
	Core Lab V		Java networking lab	5	2
			.Net Programming lab	5	2
	Elective II		1. Mini Project 2.Cloud Computing 3.Wireless & Mobile computing	4	6
	SS		Self study – Linux Programming		
IV	Core Papers		Digital Image Processing	6	4
			Organizational behaviour	6	4
			Cryptography & Network Security	6	4
	Research		Project	12	10
	SS		Self Study- Satellite Communication	-	5
Total				120	90

DEPARTMENT OF INFORMATION TECHNOLOGY

YADAVA COLLEGE (AUTONOMOUS)

CHOICE BASED CREDIT SYSTEM SYLLABUS PLAN (2015-2017)

POST GRADUATE PROGRAMME

M.Sc. INFORMATION TECHNOLOGY

Nature Of Subject		Title	Hours	Credit
Core Theory	1	Principles of Information Technology	4	4
	2	Programming in C & C++	4	4
	3	Relational Database Management System	4	3
	4	Operating System	4	3
	5	Compiler Design	4	3
	6	Quantitative methods	4	4
	7	Data Structures and Algorithms	4	4
	8	Web Technology	4	3
	9	Data Communications and Networking	4	3
	10	Compiler Design	4	4
	11	Advanced Java	4	4
	12	Multimedia	4	3
	13	Software Engineering	4	3
	14	.Net Programming	6	4
	15	Digital Image Processing	6	4
	16	Organizational Behaviour	6	4
	17	Cryptography & Network security		

Core Practical	1	Programming in C & C++	5	2
	2	Oracle Lab	5	2
	3	Data Structures Lab	5	2
	4	Web Technology Lab	5	2
	5	Java Networking Lab	5	2
	6	.Net Lab	5	2
Elective	I	a) Resource Management Technique b) System Software c) Artificial Intelligence	4	5
	II	a) Mini Project b)Cloud Computing c)Wireless & Mobile Computing	4	6
Research		Project Viva-Voce	12	10
Total			120	90

SEMESTER: I

PRINCIPLES OF INFORMATION TECHNOLOGY

Total hours: 60hrs **Hrs / week: 4**
Sub. Code : **Credit : 4**

AIM:

To build the conceptual knowledge about the computer systems and information technology.

UNIT I:

Introduction to computer systems : Introduction to computers – Generation of modern computers – Classification of digital computer systems – Anatomy of Digital computers- The Number System.

UNIT II:

Central Processing Unit & Memory Units- Secondary storage devices- Input devices – Output devices.

Computer Software and software development: Introduction to computer software- Introduction to software development- Programming Languages- Operating Systems.

UNIT III:

Database Management systems: Introduction to database management system-RDBMS & SQL- Modern database management system.

Telecommunication : Introduction to Telecommunication – Computer Networks – Distributed dataprocessing.

UNIT IV:

Security , Multimedia & Virtual Reality: Introduction to computer security – Cryptography – Computer viruses , bombs& worms. Introduction to Multimedia – Multimedia & applications- Introduction to virtual reality .

UNIT V:

New Technologies in IT: Introduction to Hyper Media- Artificial Intelligence & Business Intelligence- Knowledge discovery in database (KDD)- Datawarehouse & Datamarts- Datamining & OLAP.

TEXTBOOK:

1. "Fundamentals of Information Technology" II ed , Alexis Leon , Mathews Leon.

REFERENCE BOOK:

1. " Introduction to Information Technology" - ITL Solution Pearson publication

SEMESTER: I

PROGRAMMING IN C AND C++

Total hours: 60hrs **Hrs / week: 4**
Sub. Code : **Credit : 4**

AIM:

To learn the concepts of object-oriented programming techniques, streams and using Files.

UNIT I:

Introduction to C Programming: C character set – Identifiers and Keywords – Data types – Constants – Variables & Arrays – Expressions – Statements.

Operators and Expressions: Arithmetic Operator – Unary Operator – Relational Operator &logical operator – Assignment Operator – The conditional Operator.

Data input and output: The Getchar function- The putchar function – scanf function- printf function – Gets and Puts functions.

UNIT II:

Control statement: Branching– Looping – Nested control structures – switch – Break – continue – goto function.

Functions: Defining a function – Accessing a function – Function prototypes – Passing argument to a function – Recursion.

UNIT III:

Arrays: Defining an Array – Processing an Array – Passing array to function – Arrays and Strings.

Pointers: Pointer declaration – Passing pointer to a function –Array of pointers.

Structure and Union: Defining a structure – Processing a structure – Passing structures to function.

UNIT IV:

Introduction to C++ Programming: Introduction-Classes in C++and Inheritance-Classes and Objects – Constructors – Destructors – Overloading operators – Data conversion – Single – Multiple – Multi level – Constructors in Multiple inheritance.

UNIT V:

Virtual functions: Pure virtual function – virtual functions and constructors – Destructors and virtual destructors.

Input / Output in C++: I/O streams –Manipulators - Errors during I/O.

Exception handling: setjmp() and longjmp() – exception handling in c++ - exception with arguments.

TEXTBOOK:

1. "Programming with C" – Byron Gottfried.

Units covered:

- **UNIT I**: Ch 2: 2.1; 2.3; 2.7 – 2.9; 2.11 – 2.12

  Ch 3: 3.1 – 3.5
- **UNIT II**: Ch 6: 6.2 – 6.11

  Ch 7: 7.3 – 7.26
- **UNIT III**: Ch 9: 9.1- 9.5

  Ch 10: 10.2; 10.3; 10.8

  Ch 11: 11.1-11.2; 11.5

2. “Let Us C++” - Yashavant Kanetkar.

Units covered:

- **UNIT IV:** Ch 5; Ch 7; Ch 9
- **UNIT V:** Ch 10; Ch 11; Ch 13; Ch 14.

REFERENCE BOOK:

1. “Programming in ANSI C”, Tata McGraw Hill, New Delhi, 2002 by Balagurusamy E.
2. “Programming in C++”, Tata McGraw Hill, by Balagurusamy E.

SEMESTER: I

RELATIONAL DATABASE MANAGEMENT SYSTEM

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 4**

AIM:

To inculcate knowledge on RDBMS concepts and Programming with Oracle

UNIT I:

Database Concepts: A Relational approach: Database – Relationships – DBMS –Relational Data Model – Integrity Rules – Theoretical Relational Languages. **Database Design**: Data Modeling and Normalization: Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams - Denormalization – Another Example of Normalization.

UNIT II:

Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

Working with Table: Data Management and Retrieval**:** DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records –retrieving Data from Table.

UNIT III:

Operations: Arithmetic Operations – restricting Data with WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE command – CASE structure.

Functions and Grouping: Built-in functions –Grouping Data. Multiple Tables: Joins and Set operations: Join – Set operations- Sub Queries: Nested Queries

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 – SQ L in PL/SQL – Data Manipulation – Transaction Control statements.

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.

UNIT V

PL/SQL Composite Data Types: Records – Tables – Varrays.

Named Blocks: Procedures – Functions – Packages –Triggers –Data Dictionary Views.

TEXTBOOK:

1. Database Systems Using Oracle – Nilesh Shah, 2nd edition, PHI.

Units covered:

- **UNIT I:** Chapters-1,2
- **UNIT II:** Chapters-3,4
- **UNIT III:** Chapters-5,6,7,8
- **UNIT IV:** Chapters-10,11,12
- **UNIT V:** Chapters-13,14

REFERENCE BOOK:

1. Database Management Systems – Gerald V. Post, 3rd edition, TMH.

2. Database Management Systems – Arun Majumdar & Pritimoy Bhattacharya, 2007, TMH.

SEMESTER: I

OPERATING SYSTEM

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 3**

AIM

To enhance the knowledge on Advanced Operating System

UNIT I:

Introduction: The operating system as an extended machine – The operating system as a Resource Manager . Operating system concept: Processes – Address space – Files – Input/output – Protection – The Shell . Operating System Structure : Monolithic systems – Layered system – Microkernels – Client –Server model – Virtual Machines.

UNIT II:

Processes and Threads: Process Model – Processes Creation – Process Termination – Process Hierarchies – Process States. Threads : Thread usage – The Classical Thread model – implementing thread in user space – implementing threads in the kernel – Hybrid implementation - CPU scheduling:basic concepts-scheduling criteria-scheduling algorithms.

UNIT III:

Memory management : Swapping – Managing free memory – Virtual memory – Paging. Deadlocks: Resources – Introduction to Deadlocks – Deadlock Detection and Recovery – Deadlock Avoidance – Deadlock Prevention.

UNIT IV:

Multimedia Operating Systems : Introduction to multimedia – Multimedia process scheduling – Caching – Disk scheduling for multimedia.

UNIT V:

Multiple processor systems: Multiprocessor operating system types – Multiprocessor Synchronization –Multiprocessor scheduling.

Distributed systems: Network Services and protocols – Document based middleware – File system based middleware – Object based middleware – Grids.

TEXT BOOK:

1. "MODERN OPERATING SYSTEMS" , Third Edition, Andrew S. Tanenbaum

UNITS COVERED:

- **UNIT I:** Chapter-1
- **UNIT II:** Chapter-2
- **UNIT III:** Chapters-3,6
- **UNIT IV:** Chapter- 7
- **UNIT V:** Chapter-8

REFERENCE BOOKS:

1. "Abraham Silberschatz, Peter Baer Galvin and Greg Gagne, "Operating System concepts", Sixth Edition, John Wiley and sons (ASIA) pvt limited, 2012.
2. Harvey M.Deitel,"Operating system", II Edition, Pearson Education Pvt Ltd.

SEMESTER: I

QUANTITATIVE METHODS

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 3**

AIM:

To enable the students to learn the Statistical methods and its applications

UNIT I:

Introduction to statistics – Functions of statistics- Limitations – Classification – Objectives – Types of classification – Tabulation – Role of Tabulation – Parts of table.

UNIT II:

Measures of central tendency: Mean median, mode, quartiles, deciles, percentiles. Measures of dispersion: Range, quartile deviation, Mean deviation, standard deviation, coefficient of variation.

UNIT III:

Testing of Hypothesis I - Procedure for testing of hypothesis-Hypothesis testing for large sample and small samples (using z-test,'t' test)- F-test.

UNIT IV:

Testing of Hypothesis II- Non-parametric tests: chi-square tests, Sign test, Mann Whitney UTest, Kruskal-Wallis Test, Spearman's Rank correlation Test.

UNIT V:

Correlation & Regression - Concepts of correlation-Types of correlation-Karl Pearson's coefficient of correlation**.** Simple Regression-Regression Coefficients- Method of least squares.

TEXT BOOKS:

1. **“**Statistical Method” - S.P.Guptha
2. “Statistics”-R.S.N.Pillai & V.Bagavathi

REFERENCE BOOK:

1. “Fundamentals of Mathematical Statistics”- Gupta S.C. and Kapoor V.K ,Sultan Chand & Sons 2002

SEMESTER: I

PROGRAMMING IN C & C++ Lab

Total hours: 60hrs **Hrs / week: 5**
Sub. Code: **Credit : 2**

1. Armstrong Number
2. Perfect Number
3. Multiplying Two matrices & Transpose Of The Matrix
4. Sin Series, Cos Series
5. Quadratic Equation Using Switch
6. Magic Square
7. Program for factorial using recursion
8. Single linked list
9. Doubly linked list
10. Inline function
11. Swapping two values
12. Program for manipulators
13. Function overloading
14. Single inheritance
15. Multiple inheritance
16. Multi level inheritance
17. Multi path inheritance
18. Hybrid inheritance

SEMESTER: I

ORACLE LAB

Total hours: 60hrs **Hrs / week: 5**
Sub. Code: **Credit : 2**

1. Payroll
2. Mark Sheet Processing
3. Savings bank account for banking
4. Inventory System
5. Invoice System
6. Library information System
7. Student information System
8. Income tax processing System

SEMESTER: II

DATASTRUCTURES AND ALGORITHMS

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 4**

AIM:

To develop the knowledge of the students on Arrays, Linked lists, Pointer, Trees through algorithms

UNIT I:

Introduction: Data structure –Data structure operation, **Preliminaries:** Mathematical notation and function - Algorithmic Notation – control structures- Complexity of Algorithms - sub algorithms - variables, Data types.

UNIT II:

String processing: Introduction – Basic terminology - storing string-character Datatype - string operations. **Arrays:** Introduction-linear arrays - Traversing linear arrays - inserting and deleting - multidimensional arrays – pointer array - matrices.

UNIT III:

Linked lists: Introduction – representation of linked lists in memory - traversing a linked list – searching a linked list – Memory allocation - garbage collection-insertion into a linked list- deletion from a linked list-header linked lists.

UNIT IV:

Stacks: Introduction-array representation of stacks- linked representation of stacks- insertion and deletion in stack - quick sort, an application of stacks -

recursion – **Queues:** Introduction – linked representation of queues – deques – priority queues.

UNIT V:

Trees: Introduction – Binary Tree - Traversing binary tree - Binary trees – Binary search trees – searching in a binary search tree - inserting and deleting in a binary search tree – AVL search trees – insertion and deletion in an AVL search tree - B Trees.

TEXT BOOKS:

1. Seymour lipschutz, "Data structures", The Mc-GrawHill Companies

2. Alfred V.Aho, JohnE.Hopcroft, and Jeffery D.Ullman, "Data Structures & algorithms", Adison Wesley.

REFERENCE BOOKS:

1. Robert L.kruse, "Data structures and program design", prentice hall of India, 3rd edition.

2. Jean-paul trembley and Paul G.Sorenson, "An introduction to data structures with applications", Data MC Grawhill.

SEMESTER: II

WEB TECHNOLOGY

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 4**

UNIT I:

Internet Basic - Introduction to HTML - List - Creating Table - Linking document - Frames - Graphics to HTML Doc - Style sheet - Style sheet basic - Add style to document - Creating Style sheet rules - Style sheet properties - Font - Text - List - Color and background color - Box - Display properties.

UNIT II:

Introduction to Javascript - Advantage of Javascript - Javascript Syntax - Datatype - Variable - Array - Operator and Expression - Looping Constructor - Function - Dialog box.

UNIT III:

Javascript document object model - Introduction - Object in HTMl - Event Handling - Window Object - Document object - Browser Object - Form Object - Navigator object - Screen object - Build in Object - User defined object - Cookies.

UNIT IV:

ASP. NET Language Structure - Page Structure - Page event, Properties &Compiler Directives. HTML server controls - Anchor, Tables, Forms, Files. Basic Web server Controls - Lable, Textbox, Button, Image, Links, Check & Radio button, Hyperlink. Data List Web Server Controls - Check box list, Radio button list, Drop down list, List box, Data grid, Repeater.

UNIT V:

Request and Response Objects, Cookies, Working with Data - OLEDB connection class, command class, transaction class, data adaptor class, data set class. Advanced Issues - Email, Application Issues, Working with ITS and page

Directives , Error handling. Security - Authentication, IP Address, Secure by SSL & Client Certificates.

TEXT BOOKS:

1. I. Bayross, Web Enable Commercial Application Development Using HTML, DHTML, Javascript, Perl CGI, BPB Publications, 2000
2. J. Jaworski, Mastering Javascript, BPB Publications, 1999

REFERENCE BOOK:

1. T. A. Powell, Complete Reference HTML (Third Edition), TMH, 2002.
2. G.Buczek, ASP.NET Developers Guide, TMH, 2002.

SEMESTER: II

DATA COMMUNICATIONS AND NETWORKING

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 3**

AIM :

To provide knowledge about the Data Communication and Network

UNIT I:

Introduction-Data Communications-Components-Data representation-Data flow-Networks-Distributed processing-Network Criteria-Physical structures-Network models-Categories of network-Protocols and standards-Network model-Layers in the OSI model.

UNIT II:

TCP/IP protocol suite-Addressing-Physical layer and media-data and signals-analog and digital-periodic analog signals-digital signals-Performance-Transmission Media-Guided media-Unguided media

UNIT III:

Switching-circuit switched networks-datagram networks-Virtual circuit networks-Datalink layer-Error detection and correction-types of errors-data link control-framing-flow and error control-Noiseless channels-Noisy channels

UNIT IV:

HDLC-Point to point protocol-Network layer-Unicost routing protocols-Multicost routing protocols-Connecting LAN's-Backbone Networks –Virtual LAN'S

UNIT V:

Transport layer-Process to process delivery-User datagram protocol-TCP services-TCP features-SCTP Services-SCTP features-Application layer-Remote logging-Telnet-Email-File transfer.

TEXT BOOK:

1. "Data Communication and Networking" – Behrouz A.Forouzan IV Edition

REFERENCE BOOK:

1. "Computer Networks" -Andrew S.Tanenbaum III Edition

SEMESTER: II

COMPILER DESIGN

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 3**

AIM:

To develop the knowledge on the work process of the compiler

UNIT I:

Introduction to compilers: Compilers and translators – The structure of a compiler – Lexical Analysis – Syntax Analysis – Intermediate code generation – Optimization – Code generation – Error handling.

Programming Languages: The Lexical and syntactic structure of a language – Data elements – Data structure – Operators – Assignment- Statements

UNIT II:

Basic parsing techniques: Parsers – Shift – reduce parsing – Operator – precedence parsing – Top – down parsing – Predictive parsers.

UNIT III:

Automatic Construction of Efficient Parsers: LR parsers – The canonical collection of LR(0) items – Constructing SLR parsing tables – Constructing canonical LR parsing tables – Constructing LALR parsing tables – Using Ambiguous grammars- An automatic parser generator.

UNIT IV:

Syntax-Directed Translation: Syntax – directed translation schemes – Implementation of syntax- directed translators- Intermediate code- Postfix notation –Parse trees and syntax trees– Three-address code, Quadruples, and triples- Translation of assignment statement- Boolean expressions-Post-Fix translations.

UNIT V:

Symbol Tables: The contents of a symbol table – Data structures for symbol tables – Representing scope information.

Error Detection and Recovery: Errors – Lexical-phase errors – Syntactic – phase errors – Semantic errors.

TEXT BOOK:

1. "Principles of compiler Design" - Alfred V.Aho, Jeffrey D.Ullman.

UNITS COVERED:

- **UNIT I:** Ch 1: 1.1; 1.3-1.8; 1.10; Ch 2: 2.3-2.8
- **UNIT II:** Ch 5:5.1-5.5,
- **UNIT III:** Ch 6:6.1-6.7
- **UNIT IV:** Ch7: 7.1- 7.8; 7.10
- **UNIT V:** Ch 9: 9.1-9.3; Ch 11- 11.1-11.4

REFERENCE BOOK:

1. "Advanced Compiler Design and implementation" – Steven S.Muchnick.
2. "High Performance Compilers for Parallel Computing" – Michael Wolfe.

SEMESTER: II

DATA STRUCTURES LAB

Total hours: 60hrs **Hrs / week: 5**
Sub. Code: **Credit : 2**

1. Program to find maximum number in array.
2. Program for three dimensional array.
3. Program to insert and delete elements in a linear array.
4. Program to illustrate structure and pointer.
5. Program to print current date and time using functions.
6. Implement PUSH, POP operations of stack using Arrays.
7. Implement insertion, deletion operations using linked list.
8. Program for linear array operations.
9. Implement add, delete operations of a queue using Pointers.
10. Program for circular queue.
11. Postfix Expression Evaluation.
12. Program for single linked list.
13. Creation, insertion, and deletion in doubly linked list.
14. Program to illustrate the implementation of stacks using linked list.
15. Program to implement circular linked list.
16. Program to demonstrate binary search tree.
17. Program to demonstrate depth first search.
18. Program to demonstrate breadth first search.
19. Binary tree traversals (in-order, pre-order, and post-order) using linked list.
20. Depth First Search and Breadth first Search for Graphs using Recursion.

SEMESTER: II

WEB TECHNOLOGY LAB

Total hours: 60hrs **Hrs / week: 5**

Sub. Code: **Credit : 2**

1. Create Yadava College website using HTML tags.
2. Create Mark sheet preparation using HTML.
3. Creation of webpage using marquee tag
4. Link the webpage using Hyper Link Tag
5. Creation of Bio Data Form using Form Tag
6. Creation of Railway Reservation form using Form tag
7. Display the images in webpage using image tag
8. Create two division frame web page
9. Create three division frame web page using Frame tag
10. Create a web page using Audio and Video Tags
11. Reverse the word using vbscript
12. Employee details using vbscript
13. Student details using vbscript
14. Check the number is prime or not using java script
15. Convert the decimal number into binary using java script

SEMESTER: II

ELECTIVE I (1): RESOURCE MANAGEMENT TECHHNIQUE

Total hours: 60hrs **Hrs / week: 4**

Sub. Code: **Credit : 5**

AIM:

• Improving management skills by applying management theories in real life

• Preparing a basic Marketing Plan

• Understanding and Interpreting Financial Statements

UNIT I:

Introduction of O.R. – Definition, Characteristics features of O.R. – Scope, Methodology, Application of O.R. uses and limitation of O.R.

Linear Programming – Mathematical formulation, Graphical method, simplex method.

UNIT II:

Transportation model – Finding initial basic feasible solution – North-West corner method, Least cost method, Vogel's Approximation Method – Finding optimal, solution, MODI method. (Excluding degeneracy)

Assignment models – Definition, formulation, solution of Assignment models by Hungarian method – Minimization and Maximization problem – (excluding Airline crew problem)

UNIT III:

Game Theory – Introduction, Two person Zero – sum Games, Solution of 2*2 Rectangular Games, Graphical method. (2*n Games, m*2 Games) Decision Theory – Decision making under risk and uncertainty.

UNIT IV:

Queuing Theory – General Structure of a queuing System, characteristics of a queuing system, Poisson – Exponential single server model – Infinite – Population , Poisson – Exponential single server model – Finite population.

UNIT V:

Replacement Theory – Replacement of items that deteriorates with Time(without change in money value). Group replacement.

TEXT BOOK:

1. "Operation Research: An Introduction", Hamdy. A, Taha, Macmillan International Student's Edition, Delhi

REFERENCE BOOKS:

1. "Operation Research ", V.K. Kapoor, Sultan Chand & Sons Publishers, Delhi.
2. "Operation Research", Kanti Swarup, R.K. Gupta and Manmohan, Sultan Chand and Sons, Delhi.

SEMESTER: II

ELECTIVE I (2): SYSTEM SOFTWARE

Total hours: 60hrs **Hrs / week: 4**

Sub. Code: **Credit : 5**

AIM:

To enable the students to learn various concepts on System software

UNIT I :

System software and machine architecture – The Simplified Instructional Computer (SIC) – Traditional CISC machines-RISC machines.

UNIT II :

Basic assembler functions - A simple SIC assembler – Assembler algorithm and data structures - Machine dependent assembler features - Instruction formats and addressing modes – Program relocation - Machine independent assembler features - Literals – Symbol-defining statements – Expressions - One pass assemblers and Multi pass assemblers - implementation example - MASM assembler.

UNIT III:

Basic loader functions - Design of an Absolute Loader – A Simple Bootstrap Loader -Machine dependent loader features - Relocation – Program Linking – Algorithm and Data Structures for Linking Loader - Machine-independent loader features – Automatic Library Search – Loader Options - Loader design options - Linkage Editors – Dynamic Linking – Bootstrap Loaders - Implementation example - MSDOS linker.

UNIT IV:

Basic macro processor functions - Macro Definition and Expansion – Macro Processor Algorithm and data structures - Machine-independent macro processor features - Concatenation of Macro Parameters – Generation of Unique Labels – Conditional Macro Expansion – Keyword Macro Parameters-Macro within Macro-Implementation example - MASM Macro Processor – ANSI C Macro language.

UNIT V:

Basic compiler function-machine dependent compiler features-machine independent features-implementation examples

TEXT BOOKS:

1. Leland L. Beck, "System Software – An Introduction to Systems Programming", 3rd Edition, Pearson Education Asia, 2000

2. John R. Levine, Linkers & Loaders – Harcourt India Pvt. Ltd., Morgan Kaufmann Publishers, 2000.

REFERENCE BOOKS:

1. D. M. Dhamdhere, "Systems Programming and Operating Systems", Second Revised Edition, Tata McGraw-Hill, 1999.

2. John J. Donovan "Systems Programming", Tata McGraw-Hill Edition, 1972

SEMESTER: II

ELECTIVE I (3): ARTIFICIAL INTELLIGENCE

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 5**

AIM:

This concept explains in detail about Artificial Intelligence.

UNIT I:

Introduction to AI-Foundation and history of AI-AI Problems and Techniques-Introduction to Intelligent agents-Problem spaces and searches-Blind search strategies: Breadth first, Depth first, Heuristic search Techniques-Hill climbing-Best first-A* algorithm-AO* algorithm-Bi-directional search-Comparing search strategies.

UNIT II:

Logic based system - Review of Prepositional and first order logic-Logical inferences-Forward and Backward chaining-Introduction to Prolog-Unification and Resolution-Game playing-Minimax algorithm-Alpha beta pruning-Resolution.

UNIT III:

Programming in Prolog - Introduction-Syntax-Basic data structures-Lists-Structures and Trees-Recursion-Built-in-predicates-Example programs-Debugging prolog programs-Introduction to Uncertain Knowledge-Review of probability-Prior and Conditional Probability, Axioms of Probability-Baye's rule and its Applications-Belief network: Syntax and Semantics.

UNIT IV:

Planning-Introduction-Planning in situational calculus-Representation for planning-Partial order planning algorithm-Learning from examples-Discovery as Learning-Learning by analogy-explanation based learning-Neural nets.

UNIT V:

Principles of Natural Language Processing-Rule based system architecture-Expert systems-Knowledge acquisition concepts-AI application to robotics-current trends in intelligent systems.

TEXT BOOKS:

1. Elain rich and Kevin Knight," Artificial Intelligence", Tata McGraw-Hill Publishing Limited, NewDelhi, 1995

2. Stuart Russell and Peter Norving,"Artificial Intelligence"-A Modern Approach, Prentice Hall, 1995

REFERENCE BOOKS:

1. P.H.Winston," Artificial Intelligence", Addison Wesley, Third edition, 2000

2. Dan W.Patterson,"Introduction to Artificial Intelligence and Expert System", Prentice Hall, 1992

SEMESTER: III

ADVANCED JAVA

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 4**

AIM:

To provide the knowledge in basic of Java programming, networking in java, JFC, JSP and Servlets.

UNIT I:

Java Evolution: Java history – Java features – How java differs from c and c++ **-** Java environment – Java program structure – Java tokens – constants, variables and data types – Type casting – operators and its types – Expressions, **Decision making and branching: -** simple if – if…else – nested of if..else statements – switch statement –conditional operator – **Decision making and looping:** While and do..while statement – for statement

UNIT II:

Classes, Object and methods: Defining a class – Fields and methods declaration – creating objects – accessing class members – constructors – method overloading – Inheritance and its types – overriding methods, **Array:** Definition **-** Types of array – strings – wrapper classes, **Interface:** Defining interfaces – extending and implementing interfaces, **Packages:** Java API packages – creating packages – accessing and using a package.

UNIT III:

Thread: creating threads – extending the thread class - Life cycle of thread – thread priority, **Managing errors and exceptions:** Types of errors – exceptions – exception handling code - multiple catch statements, **Applet:** Introduction – how differ from applications - applet Life cycle – Applet tag and attributes, **Managing I/O Files:** Concept of streams – stream classes – Byte stream and character stream classes – creation of files.

UNIT IV:

JDBC: connecting a database – reading from a database – Getting information about ResultSet – **Swing:** Java Foundation Classes – swing features – Japplet – JTextField – JButton – JCheckBox- JRadioBution - JTextArea – Jlabel – Jframe – JMenuBar – Jlist, **Networking:** Introduction – using URLConnection objects – creating and using sockets –creating TCP clients and servers.

UNIT V:

Remote Method Invocation: Introduction - RMI architecture – proxy layer or stub/skeleton layer – programming a client and server – security, **Servlets:** Introduction - life cycle of the servlet development kit – The servlet API – Additional capabilities of HTTP servlet: objects of the HttpServletRequest and HttpServletResponse class – examples of GET and POST requests.

TEXT BOOKS:

1. “Programming with Java” - E. Balagurusamy, Fourth edition, McGraw Hill.

2. “Java2 Black Book” - Steven Holzner, published by Dreamtech Press, New Delhi.

REFERENCE BOOKS:

1. Ivan Bayross, “Java 2.0 (Web enabled commercial application development)”, BPB Publications

2. MCGovern, “J2EE Bible”, Wiley Dreamtech India PVT, Ltd.

SEMESTER: III

MULTIMEDIA

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 4**

AIM:

To provide knowledge on Media, Text, Image, Audio, Video and Animation

UNIT I:

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

UNIT II:

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

UNIT III:

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

UNIT IV:

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

UNIT V:

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

TEXTBOOK:

1. "PRINCIPLES OF MULTIMEDIA" – Ranjan Parekh, 2007, TMH.

UNITS COVERED:

- **UNIT I**-Chapters-1.1-1.6, 2.1-2.7, 4.1-4.7
- **UNIT II**- Chapters-5.1-5.16
- **UNIT III**- Chapters-7.1-7.4, 7.8-7.14, 7.18-7.20, 7.22, 7.24, 7.26-28
- **UNIT IV**- Chapters-8.1-8.12
- **UNIT V**-Chapters-9.5-9.10, 9.13, 9.15, 10.10-10.13

REFERENCE BOOKS:

1. "MULTIMEDIA Making it Work "– Tay Vaughan, 7th edition, TMH.
2. "Comdex MULTIMEDIA AND WEB DESIGN" – Vikas Gupta, DreamTech press.2007.

SEMESTER: III

SOFTWARE ENGINEERING

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 3**

AIM:

To provide the knowledge of Software Engineering concepts like Analysis, Design, Implementation, Testing and Maintenance.

UNIT I:

Software Engineering- Introduction and Planning: Introduction to software Engineering-Definitions-Size factors-Quality and Productivity factors-planning a software project-defining the problem-Solution strategy-Planning the development process-Organizational structure.

UNIT II:

Software cost estimation-cost factors-cost estimation techniques-Requirements specification-formal specification techniques-Languages and processors for requirements specification

UNIT III:

Software design-Design concepts-Modules and Modularization criteria-Design Notations-Verification and Validation Techniques and Software Maintenance - Quality Assurance-Walkthroughs and Inspections- Unit testing and Debugging-System testing.

UNIT IV:

Software Maintenance-Enhancing Maintainability through Development-Managerial Aspects of Software Maintenance-Configuration Management.

UNIT V:

Risk management- Reactive Vs Productive risk strategies-Software risks-risk identification-risk projection-risk mitigation, monitoring and management, safety risks and hazards-RMMM plan.

TEXT BOOKS:

1. "Software Engineering Concepts"-Richard Fairely, McGraw Hill International.

UNITS COVERED:

- **UNIT I** -Chapters-1, 2
- **UNIT II** -Chapters-3, 4
- **UNIT III** -Chapters-5, 8
- **UNIT IV** -Chapter-9

2. "Software Engineering-A Practitioner's Approach"-Roger S.Pressman, McGraw Hill International.

UNITS COVERED:

- **UNIT V** - Chapter-6

REFERENCE BOOKS:

1. Software Engineering-Ian Somerville, Pearson Education Asia, 2002, 5th edition.

2. Software Engineering-An Engineering Approach-James F.Peters,John Wiley and Sons Inc, I Edition 2000.

SEMESTER: III

.NET PROGRAMMING

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 4**

AIM:

To make the students expertise in .Net environment

UNIT I:

VB.NET: Net Framework – Features in VS.Net – Variables, Constants and Expressions – Constants Statements -Additional Windows controls-Methods and Arrays.

UNIT II:

Classes, Properties and Indexes – Inheritance and Polymorphism- Interfaces, Namespaces and Components.

UNIT III:

Delegates, Events and Attributes – Exception handling –Database connectivity.

UNIT IV:

ASP.NET: Getting g started with ASP.NET – Using Rich Web controls – Creating and Using Custom controls – Validating User input.

UNIT V:

ASP.NET Database Programming: Introducing ADO.NET – Understanding data binding – Working with data grids – Using Templates- Using SQL Server with ASP.NET.

TEXT BOOK:

1. "VB.NET" – C.Muthu, Vijay Nicole Imprints Pvt Ltd(Unit I – III)
2. "ASP.NET" – Mridula Parihar et al, Wiley – Dreamtech India PvtLtd (Unit IV ,V).

REFERENCE BOOK:

1. " VB.NET" – P.Radhaganesan SCITECH publications (INDIA) Pvt .Ltd.

SEMESTER: III

JAVA NETWORKING LAB

Total hours: 60hrs **Hrs / week: 5**
Sub. Code: **Credit : 2**

1. Program for print the adam numbers.
2. Program using with string function .
3. Program for multilevel inheritance.
4. Program for using interface.
5. Program to invoke the user defined package
6. Applet program that calculate the employee salary details.
7. Applet program to change the font style and size.
8. Program to print the URL and local port.
9. Program to send the message from one system to another using networking concept.
10. Create the students details using Swing.
11. Program to retrieve the data from the combobox using JDBC.
12. Program using RMI to sort the given numbers.
13. Program using RMI to generate ticket ID for the ticket issued by the client.
14. Program using RMI to add the numbers.
15. Program using frame which display time and date in client from the server.
16. Create a webpage using JSP.

SEMESTER: III

.NET PROGRAMMING LAB

Total hours: 60hrs **Hrs / week: 5**

Sub. Code: **Credit : 2**

1. Program using structure and enum
2. Program using classes, methods, properties and read only property
3. Program for calculator program
4. Program using constructors, overload constructors and class events
5. Program using exception handling
6. Functions to perform various string operations
7. Program using .net built-in collection classes namely array list, bit array, hash tables, queue, sorted list, stack, collection, dictionary base.
8. Program using inheritance, constructors in inheritance
9. Program using overriding, abstract base classes, shared members and interface
10. Program using win Form controls
11. Program using streams and serialization
12. Program using database
13. Program to make a puzzle
14. Program for new component
15. Program for web application

SEMESTER: III

ELECTIVE II (1): MINI PROJECT

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 6**

SEMESTER: III

ELECTIVE II (2): CLOUD COMPUTING

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 6**

AIM

To enable the students to learn the concepts of cloud computing.

UNIT I:

Understanding cloud computing: An Introduction to cloud computing – what it is & what it is not – History: How cloud computing works – Cloud computing today: Computing in the cloud – Developing cloud services.

UNIT II:

Cloud computing for the community – Cloud computing for the corporation – Using cloud services : Collaborating on calendars, Schedules and task management – Exploring online calendar application – Exploring online schedule application – Exploring online Planning and task management.

UNIT III:

Collaborating on event management : Event management application – Exploring event management application – Collaborating on project management: Exploring project management applications – Collaborating on databases: how it works- exploring web based databases.

UNIT IV:

Storing and Sharing Files and other online content: Understanding cloud storage- Evaluating online File- Storage and sharing services – Exploring online book marketing services.

Sharing Digital Photographs: Exploring online photo – editing applications – exploring photo sharing communities – Controlling it all with Web based desktops.

UNIT V:

Collaborating via web based communication Tools: Evaluating Mail services – Instant Messaging Services – Web conferencing tools.

Collaborating via social networks & errorpware: Creating groups on social networks evaluation online groupware.

TEXT BOOK:

1. "Cloud computing web based application that change the way you work and collaborate online" by Michael miller

REFERENCE BOOK:

1. "Cloud Computing: A Practical Approach" – Anthony T Velte, Toby J Velte, MGH, 2010

2. "Enterprise Cloud Computing" – Gautam Shroff, Cambridge, 2010

SEMESTER: III

ELECTIVE II (3): WIRELESS &MOBILE COMPUTING

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 6**

AIM:

To understand the concept of wireless communication, networks, mobile network layers, wireless application protocol models

UNIT I:

WIRELESS COMMUNICATION FUNDAMENTALS: Introduction – Wireless transmission – Frequencies for radio transmission – Signals – Antennas – Signal Propagation – Multiplexing – Modulations – Spread spectrum – MAC – SDMA – FDMA – TDMA – CDMA – Cellular Wireless Networks.

UNIT II:

TELECOMMUNICATION NETWORKS: Telecommunication systems – GSM – GPRS – DECT – UMTS – IMT-2000 – Satellite Networks - Basics – Parameters and Configurations – Capacity Allocation – FAMA and DAMA – Broadcast Systems – DAB - DVB.

UNIT III:

WIRLESS LAN: Wireless LAN – IEEE 802.11 - Architecture – services – MAC – Physical layer – IEEE 802.11a - 802.11b standards – HIPERLAN – Blue Tooth.

UNIT IV:

MOBILE NETWORK LAYER: Mobile IP – Dynamic Host Configuration Protocol - Routing – DSDV – DSR – Alternative Metrics.

UNIT V:

TRANSPORT AND APPLICATION LAYERS: Traditional TCP – Classical TCP improvements – WAP, WAP 2.0.

TEXT BOOK:

Jochen Schiller, "Mobile Communications", PHI/Pearson Education, Second Edition, 2003.

UNITS COVERED:

- **UNIT I** -Chap 1, 2 &3
- **UNIT II** -Chap 4, 5 &6
- **UNIT III** -Chap 7.
- **UNIT IV** -Chap 8
- **UNIT V** -Chap 9&10

REFERENCE BOOKS:

1. William Stallings, "Wireless Communications and Networks", PHI/Pearson Education, 2002.
2. Kaveh Pahlavan, Prasanth Krishna moorthy, "Principles of Wireless Networks", PHI/Pearson Education, 2003

SELF STUDY PAPER

LINUX

Semester : III **Credit:5**

Subject Code:

AIM:

The Primary objective of this course is to learn principles of problem solving using Linux.

UNIT I:

History of Linux – Features of Linux operating system – Advantages of Linux –The Linux Architecture – Linux versus Unix – Linux Directory Hierarchy – Getting started with Linux.

UNIT II:

Linux file system – Types of files in Linux – Types of Users in Linux – Pathnames – Redirecting Input & Output – Essential Linux commands.

UNIT III:

Directory manipulation commands – File manipulation commands – File Comparison commands – Filter commands – Pattern searching commands – File Permission Commands – Communication commands – Process commands – File storage commands.

UNIT IV:

Text Editors – Function of an Editor-Vi Editor- Getting started with Vi Editor – Shell – Features of the Linux Shell – Shell as a command interpreter – Commonly available Shells.

UNIT V:

Shell Scripts in Linux – Shell Variables – Command substitution – Conditional execution constructs – Iteration constructs – Working with GNOME – Working with KDE.

REFERENCE BOOK:

1. P.Sudharson , “Linux Programming” second edition RPB Publications
2. RedHat Linux “Advanced programming in the Linux environment”
3. W. Stevens, Bill Fenner, Andrew Rudoff, “Linux Network Programming”

SEMESTER: IV

DIGITAL IMAGE PROCESSING

Total hours: 60hrs **Hrs / week: 6**
Sub. Code: **Credit : 4**

AIM:

The objective of this paper is to provide an introduction to basic concepts and methodologies for digital image processing.

UNIT I:

Introduction: What is Digital Image Processing – The Origins of Digital Image Processing – Components of DIP Systems- Fundamental steps in Digital Image Processing

UNIT II:

Digital image fundamentals: Image acquisition using single sensor- Image acquisition using sensor strips - Image acquisition using sensor arrays.

Image sampling and Quantization: Basic concepts in Image sampling and quantization - Representing digital images - Spatial and intensity resolution - Image interpolation.

Basic relationship between pixels: Neighbors of a pixel- Adjacency, connectivity, regions and boundaries - Distance measures.

UNIT III:

An introduction to mathematical tools used in DIP: Arithmetic Operations – Set and Logical operations.

Basic intensity transformation functions: Image negatives - Log transformations –Power Law (Gamma) Transformations - enhancement using arithmetic logic operations

UNIT IV:

Color image processing: color fundamentals – color models – The RGB color model – The CMY and CMYK color models, The HIS color models –

Pseudo color image processing – intensity slicing – intensity to color transformations.

UNIT V:

Image compression – fundamentals - coding redundancy – Spatial and Temporal redundancy – irrelevant information - image compression models

TEXT BOOKS:

1. "Digital Image Processing", Rafael C.Gonzalez, Richard E.woods, 3rd Edition.

UNITS COVERED:

- **UNIT I:** Chapters-1
- **UNIT II:** Chapters-2
- **UNIT III:** Chapters-2,3
- **UNIT IV:** Chapters-6
- **UNIT V:** Chapters-8

REFERENCE BOOKS:

1. Jain A.K. "Fundamentals of Digital Images Processing", PHI, Delhi 1995
2. Prati, "Digital Image Processing", Wiley, 2nd Edition, 1991

SEMESTER: IV

ORGANIZATIONAL BEHAVIOUR

Total hours: 60hrs **Hrs / week: 6**
Sub. Code: **Credit : 4**

AIM:

• Manage individuals and groups in organizations for maximum effectiveness.

• Describe, understand and manage formal organization structures.

UNIT I:

Meaning of OB- Contributing disciplines- Challenges and opportunities for OB- OB Model

UNIT II:

Foundations of individual behavior- Attitudes- components – Job attitudes and job satisfaction. Personality – Meaning – Determinants – Personality traits – Personality attributes-. Values – Types – Values across cultures. Learning – Definition – Theories – Shaping – Perception – Meaning – Factors.

UNIT III:

Motivation – Meaning – Content and Process Theories – Application of motivation theories – leadership – Situational theories- Stress: Understanding Stress and Its Consequences, Causes of Stress, Managing Stress.

UNIT IV:

Foundations of group behavior – Classification- Stages of group development – Group properties- Teams – Types of teams – Creating effective teams. Conflict – Meaning – Views – Conflict process. Negotiation – Process – Bargaining strategies.

UNIT V:

Power – Bases of power – Power tactics .Politics Definition – Factors contributing to political behavior – Impression management organizational culture-Definition – Functions – Creating and sustaining culture.

TEXT BOOKS:

1. Luthan Fred Organizational Behaviour Tata McGraw Hill 2000

2. Robbins Stephen. P Organizational Behaviour 12th Edition Prentice Hall (India) Pvt Ltd 2006

REFERENCE BOOKS:

1. V.S.P Rao, Organizational Behaviour, Excel Books, 2009

2. Sekaran Uma Organizational Behaviour 2nd Edition Tata McGraw Hill 2006

SEMESTER: IV

CRYPTOGRAPHY & NETWORK SECURITY

Total hours: 60hrs **Hrs / week: 4**
Sub. Code: **Credit : 3**

AIM:

To enhance the knowledge on Cryptography Techniques

UNIT I:

Introduction: Overview – Services, Mechanisms, Attacks – OSI Security Architecture – Model for Network Security

Classical Encryption Techniques: Symmetric cipher model – Substitution techniques – transposition techniques – Rotor machine – Stenography

UNIT II:

Block ciphers, DES and AES: Simplified DES – Block cipher principles – Data Encryption Standard – Strength of DES - Evaluation criteria for AES – Advanced Encryption Standard cipher.

UNIT III:

Contemporary Symmetric Ciphers: Triple DES – Blowfish – RC5 – Characteristics of Advanced Symmetric Block Ciphers

Confidentiality using Symmetric Encryption: Placement of Encryption function – traffic Confidentiality – key distribution

UNIT IV:

Public key Cryptography and RSA: Principles of Public Key – Cryptosystems – RSA Algorithm – key Management – Diffie-Helmen key exchange

Message authentication and Hash Function: Authentication Requirements, Functions – Message Authentication Codes – Hash Functions

UNIT V:

Digital Signature: Digital Signature – Authentication protocols – Digital Signature Standard

System Security: Intruders - Intrusion Detection – Password management- Malicious software- viruses& related threats – firewall design principles.

TEXT BOOK

1. "Cryptography & network security principles & practical"– William Stallings, 3rd edition.

REFERENCE BOOKS:

1. "Cryptography and Network Security" – Behrouz A.Forouzan, The Mc Graw Hill, 2008
2. Cryptography and Network Security – William Stallings, PHI, 2008

SEMESTER: IV

RESEARCH - PROJECT

Total hours: 60hrs **Hrs / week: 12**
Sub. Code: **Credit : 10**

SELF STUDY PAPER

SATELLITE COMUNICATIONS

Semester : IV **Credit:5**

Subject Code:

UNIT I:

Introduction: Historical progress, orbits of satellites, types – low, medium , geostationary- main characteristics – angle, shape and period.

UNIT II :

Satellite Links: General characteristics, delay, transponders, earth station, antennas and earth coverage , altitude control.

UNIT III :

Satellite Constructions: Subsystems and functions, antennas, transponders, power supplies, command & telemetry , thrust and stabilization.

UNIT IV:

Earth station : General block schematics , transmitter and receiver, antenna, system & tracking , multiplexing , space, time and frequency multiplexing.

UNIT V:

Multiple access Principle: FDMA , spade system, DMA – System concept of configuration system timing , frame format basic principles of spread spectrum , multiple access.

REFERENCE BOOKS:

1. J.Martin , Communication satellite(PH)
2. J.J.Spilker , Digital Communication by satellite(PH)
3. R.M. Gagliardi, Satellite Communications – CBS
4. M.Maitra, Satellite Communication, PHI