

**ALLUVAR UNIVERSITY**

**BACHELOR OF SCIENCE**

**B.Sc. SOFTWARE COMPUTER SCIENCE**

**DEGREE COURSE**

**CBCS PATTERN**

**(With effect from 2012 - 2013)**

**The Course of Study and the Scheme of Examinations**

S.NO.	Part	Study Components		Ins. hrs /week	Credit	Title of the Paper	Maximum Marks		
		Course Title					CIA	Uni. Exam	Total
<b>SEMESTER I</b>									
1	I	Language	Paper-1	6	4	Tamil/Other Languages	25	75	100
2	II	English	Paper-1	6	4	English	25	75	100
3	III	Core Theory	Paper-1	6	5	Introduction to Information Technology	25	75	100
4	III	Core Practical	Practical-1	3	0	Office Automation Lab	0	0	0
5	III	ALLIED-1	Paper-1	7	4	Mathematical Foundations I	25	75	100
6	IV	Environ. Studies		2	2	Environmental Studies	10	40	50
				<b>30</b>	<b>19</b>		<b>110</b>	<b>340</b>	<b>450</b>
<b>SEMESTER II</b>									
7	I	Language	Paper-2	6	4	Tamil/Other Languages	25	75	100
8	II	English	Paper-2	4	4	English	25	75	100
9	III	Core Theory	Paper -2	6	4	Programming in C	25	75	100
10	III	Core Practical	Practical-1	0	2	Office Automation Lab	40	60	100
11	III	Core Practical	Practical-2	3	2	Programming in C Lab	40	60	100
12	IV	Allied-1	Paper- 2	7	6	Mathematical Foundation II	25	75	100
13	IV	Soft skill		2	1	Soft skill	10	40	50
14	IV	Value Education		2	2	Value Education	10	40	50
				<b>30</b>	<b>25</b>		<b>200</b>	<b>500</b>	<b>700</b>

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Course Title /week						Credit	Title of the Paper	Maximum Marks		
<b>SEMESTER III</b>								<b>CIA</b>	<b>Uni. Exam</b>	<b>Total</b>
15	I	Language	Paper-3	6	4	Tamil / Other Languages	25	75	100	
16	II	English	Paper-3	6	4	English	25	75	100	
17	III	Core Theory	Paper-3	3	3	Software Engineering	25	75	100	
18	III	Core Practical	Practical-3	3	3	C++ Lab	40	60	100	
19	III	Allied-2	Paper-3	4	4	Quantitative Techniques I	15	60	75	
20	IV	Allied-2	Practical	3	0	Quantitative Techniques Lab	0	0	0	
21	IV	Skill Based subject	Paper-1	3	3	Object oriented programming using C++	15	60	75	
22		Non-Major Elective	Paper-1	2	2	Office Automation Tools	10	40	50	
				<b>30</b>	<b>23</b>		<b>155</b>	<b>445</b>	<b>600</b>	
<b>SEMESTER IV</b>								<b>CIA</b>	<b>Uni. Exam</b>	<b>Total</b>
23	I	Language	Paper-4	6	4	Tamil/Other Languages	25	75	100	
24	II	English	Paper-4	6	4	English	25	75	100	
25	III	Core Theory	Paper-4	3	3	Object oriented analysis and design	25	75	100	
26	III	Core Practical	Practical-4	3	3	Data structures using C++ lab	40	60	100	
27	III	Allied-2	Paper-4	4	4	Quantitative Techniques II	15	60	75	
28	IV	Allied Practical	Practical	3	2	Quantitative Techniques Lab	10	40	50	
29	IV	Skill Based Subject	Paper-2	3	3	Data Structures	15	60	75	
30		Non-Major Elective	Paper-2	2	2	Internet and its applications	10	40	50	
				<b>30</b>	<b>25</b>		<b>165</b>	<b>485</b>	<b>650</b>	
<b>SEMESTER V</b>								<b>CIA</b>	<b>Uni. Exam</b>	<b>Total</b>
31	III	Core Theory	Paper -5	6	5	Database Management Systems	25	75	100	
32	III	Core Theory	Paper -6	6	5	Java Programming	25	75	100	
33	III	Core Practical	Practical-5	4	3	Java Programming Lab	40	60	100	
34	III	Core Practical	Practical-6	4	3	RDBMS lab	40	60	100	

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Course Title					Credit	Title of the Paper	Maximum Marks		
				/week					
	IV	Core	Demo	4	0	Internet	0	0	0
36	III	Elective I	Paper-1	3	3	<b>(to choose 1 out of 3)</b> 1. Data Mining 2. Computer Graphics 3. Digital Image Processing	25	75	100
37	III	Skill Based Subject	Paper-3	3	3	Operating Systems	15	60	75
				<b>30</b>	<b>22</b>		<b>170</b>	<b>405</b>	<b>575</b>
<b>SEMESTER VI</b>							<b>CIA</b>	<b>Uni. Exam</b>	<b>Total</b>
38	III	Core Theory	Paper-7	7	5	Web Technology	25	75	100
39		Core Theory	Paper-8	6	5	Mobile Technology	25	75	100
40	III	Core Practical	Practical 7	4	3	Web Technology Lab	40	60	100
41	III	Core Practical	Practical 8	4	3	Visual Programming Lab	40	60	100
42	III	Elective II	Paper -2	3	3	<b>(to choose 1 out of 3)</b> 1. Network security & cryptography 2. Client server technology 3. Data communication & network	25	75	100
44	III	Elective III	Paper-3	3	3	<b>(to choose 1 out of 3)</b> 1. Electronic Commerce 2. Software Project Management 3. Internet & its Applications	25	75	100
45	III	Skill Based Subject	Paper-4	3	3	Visual Programming	15	60	75
46	V	Extension Activities		0	1	Extension Activities	50	0	50
		<b>TOTAL</b>		<b>30</b>	<b>26</b>		<b>245</b>	<b>480</b>	<b>725</b>

## B.Sc. Software Computer Science: Syllabus (CBCS)

		Papers	Credit	Total credits	Marks	Total Marks
Part I	Languages	4	4	16	100	400
Part II	English	4	4	16	100	400
Part III	Allied (Odd Semester)	2	4	8	100+75 (I + III sem)	175
	Allied (Even Semester)	2	6+4	10	100 + 75 (I + III sem)	175
	Allied Practical	1	2	2	50	50
	Electives	3	3	9	100	300
	Core	8	(3-7)	35	100	800
	Core Practical	8	(3-5)	22	100	800
Part IV	Environmental Science	1	2	2	50	50
	Soft skill	1	1	1	50	50
	Value Education	1	2	2	50	50
	Lang. & Others/NME	2	2	4	50	100
	Skill Based	4	3	12	75	300
Part V	Extension	1	1	1	50	50
	<b>Total</b>	<b>42</b>		<b>140</b>		<b>3700</b>

## **B.SC. SOFTWARE COMPUTER SCIENCE**

### **SYLLABUS**

### **UNDER CBCS**

**(with effect from 2012 - 2013)**

### **SEMESTER I**

### **PAPER - 1**

## **INTRODUCTION TO INFORMATION TECHNOLOGY**

### **UNIT - I**

**Introduction :** History of computer - Parts of Computer System - Hardware devices - Software - operating systems - Examples of operating system - Computer Networking - Visual Editor.

### **UNIT - II**

Word processing with Ms Word - Starting MS word - Ms Environment - Working with word document - working with text - Working with tables - checking spelling and grammar - printing document. Spread sheets and MS Excel - starting MS excel - MS Excel Environment - Working with Excel work book - Working with worksheet formulas and functions. Inserting charts and printing in Excel.

### **UNIT - III**

Making presentation with MS Power Point - starting MS Power Point - MS Power Point Environment - Working with Power Point - Working with different views - Designing presentations - printing in Power Point.

### **UNIT - IV**

Introduction to Multimedia - Images - Sound - Video Desktop Publishing Basics - Page Layout Program - Text generation - Graphics for DTP.

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Introduction systems - Management Information concepts - Planning views and the MIS - Organizing views and the MIS - control views and the MIS - Decision support Systems.

**Reference Books:**

1. Sanjay Saxsena, "A First Course in Computer", Vikas publishing House, 2000.
2. Sanjay Saxsena, "MS office 2000", Vikas publishing House, 2000
3. Linda Tway, Sapphiro pacific Lajolla, "Multimedia in Action", Academic press, 1995.

**ALLIED 1**

**PAPER - 1**

**MATHEMATICAL FOUNDATIONS – I**

**Objectives**

To know about

Logical operators, validity of arguments, set theory and set operations, relations and functions, binary operations, Binary algebra, Permutations & Combinations, Differentiation, Straight lines, pair of straight lines, Circles, Parabola, Ellipse, Hyperbola.

**UNIT-I : SYMBOLIC LOGIC**

Proposition, Logical operators, conjunction, disjunction, negation, conditional and bi-conditional operators, converse, Inverse, Contra Positive, logically equivalent, tautology and contradiction. Arguments and validity of arguments.

**UNIT-II : SET THEORY**

Sets, set operations, venn diagram, Properties of sets, number of elements in a set, Cartesian product, relations & functions,

**Relations :** Equivalence relation. Equivalence class, Partially and Totally Ordered sets,

**Functions:** Types of Functions, Composition of Functions.

**UNIT-III : BINARY OPERATIONS**

Types of Binary Operations: Commutative, Associative, Distributive and identity, Boolean algebra: simple properties. Permutations and Combinations.

**UNIT-IV : DIFFERENTIATION**

Simple problems using standard limits,

$$\lim_{x \rightarrow a} \frac{x^n - a^n}{x - a}, \lim_{x \rightarrow 0} \frac{\sin x}{x}, \lim_{x \rightarrow 0} \frac{\tan x}{x}, \lim_{x \rightarrow 0} \frac{e^x - 1}{x}, \lim_{n \rightarrow \infty} (1 + \frac{1}{n})^n, \lim_{n \rightarrow 0} (1 + n)^{1/n}$$

Differentiation, successive differentiation, Leibnitz theorem, partial differentiation, Applications of differentiation, Tangent and normal, angle between two curves, Maximum and Minimum values (Second derivative test), Curvature and radius of Curvature (Cartesian coordinates), Envelopes.

## ANALYTICAL GEOMETRY

Straight Lines - Pair of Straight Lines - Circles - Conics (Parabola, Ellipse and Hyperbola).

### Reference Books:

1. P.R.Vittal, Mathematical Foundations - Margham Publication, Chennai.
2. U. Rizwan, Mathematical Foundation - SciTech, Chennai
3. V.Sundaram & Others, Discrete Mathematical Foundation - A.P.Publication, Sirkali.
4. P.Duraipandian & Others, Analytical Geometry 2 Dimension - Emerald publication 1992 Reprint.
5. Manicavachagom pillay & Natarajan. Analytical Geometry Part I - Two Dimension - S.Viswanathan (printers & publication) Put Ltd., 1991.



**SEMESTER II**

**PAPER – 2**

**PROGRAMMING IN C**

**UNIT - I**

C fundamentals Character set - Identifier and keywords - data types - constants - Variables - Declarations - Expressions - Statements - Arithmetic, Unary, Relational and logical , Assignment and Conditional Operators - Library functions.

**UNIT - II**

Data input output functions - Simple C programs - Flow of control - if, if-else, while, do-while, for loop, Nested control structures - Switch, break and continue, go to statements - Comma operator.

**UNIT - III**

Functions -Definition - prototypes - Passing arguments - Recursion. Storage Classes - Automatic, External, Static, Register Variables.

**UNIT - IV**

Arrays - Defining and Processing - Passing arrays to functions - Multi-dimension arrays - Arrays and String. Structures - User defined data types - Passing structures to functions - Self-referential structures - Unions - Bit wise operations.

**UNIT - V**

Pointers - Declarations - Passing pointers to Functions - Operation on Pointers - Pointer and Arrays - Arrays of Pointers - Structures and Pointers - Files: Creating, Processing, Opening and Closing a data file.

**Text Book**

1. Ashok N.Kamthane ,Programming with ANSI and Turbo C , Pearson Education, 2006

**Reference Books:**

1. B.W. Kernighan and D.M.Ritchie, The C Programming Language, 2<sup>nd</sup> Edition, PHI, 1988.
2. H. Schildt, C: The Complete Reference, 4<sup>th</sup> Edition, TMH Edition, 2000.
3. Kanetkar Y., Let us C, BPB Pub., New Delhi, 1999.

## **RE PRACTICAL – I**

### **Office Automation Lab**

#### **WORD**

1. Prepare a resume.
2. Prepare an application for a job.
3. Prepare an advertisement for a product
4. Prepare a letter head
5. Prepare a leave letter
6. From Newspaper “appointment pages” take one Advt and type
7. Mail Merge Concept
8. Copying Text and Picture From Excel
9. Creation of Tables, Formatting Tables
10. Inserting Symbols in Documents

#### **EXCEL**

1. Aligning , Editing Data in Cell
2. Excel Function (Date , Time, Statistical, Mathematical, Financial Functions)
3. Changing of Column Width and Row Height (Column and Range of Column)
4. Moving, copying, Inserting and Deleting Rows and Columns
5. Creation of Charts.
6. Import information
7. Export information

#### **POWER POINT**

1. Create slides with Headers and footers.
2. Create a slide show with minimum 5 slides to Advertise a product.
3. Create slide s with different fonts and bullets.
4. Create a slide show with animation effect.
5. Create a organization chart for a college.

## RE PRACTICAL – II

### PROGRAMMING IN C LAB

1. Summation of Series : Sin(x) (Compare with built in functions)
2. Summation of Series Cos(x) (Compare with built in functions)
3. Counting the no. of vowels, consonants, words, white spaces in a line of text and array of lines
4. Reverse a string & check for palindrome.
5.  ${}^n P_r$ ,  ${}^n C_r$  in a single program.
6. GCD of two number
7. Bubble Sort
8. Linear Search
9. Demonstration of pointer Arithmetic
10. Finding the maximum number in a set
11. Finding the minimum number in a set
12. Merge two arrays of integers both with their elements in ascending order into a single ordered array.

**ALLIED 1**

**PAPER – 2**

**MATHEMATICAL FOUNDATIONS – II**

**Objectives**

To know about Matrix Operations, Symmetric, Skew-Symmetric, Hermitian, Skew-Hermitian, Orthogonal, Unitary Matrices. Rank of a Matrix Solutions of linear equations Consistency and Inconsistency, Characteristic roots and Characteristics Vectors, Cayley - Hamilton Theorem, Integration of rational functions, Integration by parts, Reduction formulae, Area and volume using integration, Planes, Straight lines, Spheres, Curves, Cylinders.

**UNIT - I MATRICES**

Multiplication of matrices, Singular and Non-Singular matrices, Adjoint of a Matrix, Inverse of a matrix Symmetric and Skew-Symmetric, Hermitian and Skew-Hermitian, Orthogonal and unitary matrices, Rank of a matrix, Solution of Simultaneous Linear equations by

- (i) Cramer’s rule.
- (ii) Matrix Inversion Method.

**UNIT - II MATRICES**

Test for Consistency and Inconsistency of linear equations, (Rank Method), characteristic roots and characteristic vectors, Cayley - Hamilton theorem, matrix of linear transformations: reflection about the x, y axes and the line y=x, rotation about the origin through an angle, expansion or compression, shears, translation.

**UNIT - III**

Integration Simple problems, integration of rational function involving algebraic expressions of the form

$$\frac{1}{ax^2+bx+c}, \frac{-1}{\sqrt{ax^2+bx+c}}, \frac{px+q}{ax^2+bx+c}, \frac{px+q}{ax^2+bx+c}\sqrt{ax^2+bx+c}, \frac{px+q}{ax^2+bx+c}\sqrt{ax^2+bx+c}$$

integrations using simple substitutions integrations involving trigonometric functions of the form

$$\frac{1}{a+b \cos x}, \frac{1}{a^2 \sin^2 x + b^2 \cos^2 x} \quad \text{Integration by parts.}$$

on formulae for

$\int x^n e^{ax} dx$ ,  $\int \sin^n x dx$ ,  $\int \cos^n x dx$ ,  $\int x^m (1-x)^n dx$ , applications of integration for (i) Area under plane curves, (ii) Volume of solid of revolution.

### **UNIT - V ANALYTICAL GEOMETRY OF THREE DIMENSION**

Planes, straight lines, spheres and cones (simple problems any)

#### **Reference Books:**

1. P.R.Vittal, Mathematical Foundations - Margham Publication, Chennai.
2. U. Rizwan, Mathematical Foundation - SciTech, Chennai
3. V.Sundaram & Others, Discrete Mathematical Foundation - A.P.Publication, Sirkali.
4. P.Duraipandian & Others, Analytical Geometry 3 Dimension – Emerald publication 1992 Reprint.
5. Manicavachagom pillay & Natarajan. Analytical Geometry part II - three Dimension - S.Viswanathan (printers & publication) Pvt Ltd., 1991.

**SEMESTER III**

**PAPER – 3**

**SOFTWARE ENGINEERING**

**UNIT - I**

Introduction to Software Engineering: Definitions - Size Factors - Quality and Productivity Factors - Managerial Issues - Planning a Software Project: Defining the Problem - Goals and Requirements - Solution Strategy - Planning the Development Process: Various Models - Planning an Organizational Structure - Planning Activities.

**UNIT - II**

Software cost estimation: Introduction - Software Cost Factors - Software Cost Estimation Techniques - Stating Level estimation - Estimating Software Maintenance Costs Software Requirements Definition - Software Requirements Specification - Specification Techniques - Languages and Processors for Requirements.

**UNIT - III**

Software design - Design concepts - Modules And Modularization Criteria - Design Notations - Design Techniques - Design Considerations - Real Time and Distributed System Design - Test Plans - Milestones, Walkthroughs and Inspections - Design Guidelines Implementation Issues : Structure Loading Techniques - Coding Style - Standards And Guidelines - Documentation Guidelines.

**UNIT - IV**

Modern programming Language Features - Type Checking - Separate Compilation - User Defined Data Types - Data Abstraction - Scoping Rules - Exception Handling - Currency Mechanism -Verification And Validation Techniques - Quality Assurance - States Analysis - Symbolic Excretion.

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Unit - Testing And Debugging - System Testing - Formal Verification Software Maintenance - Maintainability - Managerial Aspect Of Software Maintenance - Configuration Management - Source Code Metrics - Other Maintenance Tools And Techniques.

### **Text Books**

1. Software Engineering Concepts 1997 Edition

Author: RICHARD FAIRLEY Publishers: TATA Mc GRAW-Hill Edition.

2. Software Engineering VI Edition, Author: ROGER S. PRESSMAN Publishers TATA McGRAW - HILL International Edition.

3. Software Engineering Programs Documentation Operating procedures

Author: K.K. AGGARWAL & YOGESH SINGH Publishers: NEW AGE INTERNATIONAL PUBLISHERS

## **RE PRACTICAL – III**

### **C++ Lab**

1. Program to implement classes, create object and member functions, constructors, nested classes.
2. Program to implement the concept of function overloading.
3. Program to implement the concept of operator overloading (Unary and Binary operators).
4. Program to implement the concept of Inheritance (Single, multiple, multilevel Inheritance).
5. Program to implement static and dynamic polymorphism.
6. Program to implement user defined manipulators.
7. Program to implement friend functions.
8. Program to implement file handling concepts.



**ALLIED 2**

**PAPER – 3**

**QUANTITATIVE TECHNIQUES – I**

**UNIT - I**

Operation Research (O.R.) - Nature and significance of Operation Research - Various models - Application and scope of Operation Research.

**UNIT - II**

Linear Programming Problem (L.P.P.) - characteristic of Linear Programming Problem and its formulation - graphical method of solving Linear Programming Problem - simplex method of solving Linear Programming Problem.

**UNIT - III**

Linear Programming Problem - Big M. Method - Two phase method Duality

1. North west corner
2. Least cost
3. Vogel's

**UNIT - IV**

Transportation Problem - Methods of finding Initial Basic Feasible Solution - Optimal Solution - simple problem.

**UNIT - V**

Assignment Problem - Balanced and unbalanced Assignment Problems - Optimal solution - simple problems.

**Text Book**

Kanti swarup Manmohan and Gupta - Operation Research chand and sons, New Delhi.

**Reference Books:**

1. J.K.Sharma (2003) Operation Research - Theory and its application, Mac Millan.
2. Taha. H.A. O.R. An Introduction PHI
3. P.K. Gupta and Hira, Problems in O.R. S.Chand and company Ltd., New Delhi.

**.L BASED SUBJECT**

**PAPER – 1**

**OBJECT ORIENTED PROGRAMMING USING C++**

**UNIT - I**

Principles of Object Oriented Programming (OOP) : Evolution of C++ -Programming Paradigms - Key Concepts of OOP - Advantages of OOP - Usage of OOP and C++ Input and Output in C++- Streams-Stream classes Unformatted console I/O operations-Member functions of istream class-manipulators-manipulators with parameters

**UNIT - II**

Introduction to C++; Tokens, Keywords, Identifiers, Variables, Operators, Expressions and Control Structures: If, If..Else, Switch - Repetitive Statements- for, while, do..while - Pointers and arrays

**UNIT - III**

Functions in C++ - Main Function - Function Prototyping - Parameters Passing in Functions - Values Return by Functions - inline Functions - Function Overloading

Classes and Objects; Constructors and Destructors; and Operator Overloading - Type of Constructors

**UNIT - IV**

Inheritance: Single Inheritance - Multilevel inheritance - Multiple inheritance - Hierarchical Inheritance - Hybrid Inheritance. Pointers - Virtual Functions and Polymorphism

**UNIT - V**

Working with Files: Classes for File Stream Operations - Opening and Closing a File - End-of-File Detection - File Pointers - Updating a File - Error Handling during File Operations - Command-line Arguments

**Text Books**

Ashok N.Kamthane, Object Oriented Programming with ANSI & Turbo C ++, Pearson Education, 2006

## IV MAJOR ELECTIVE

### PAPER – I

## OFFICE AUTOMATION TOOLS

### UNIT - I

Ms word: Starting word - Parts of word window - formatting features - menus, commands, Toolbars - File menu, Edit, view, insert, Format and tool menus - Working with text, tables - checking spelling and Grammars.

### UNIT - II

Mail merge concept - creating main document, data source, Adding fields - Remarks fields - Macros - Creating templates and working with templates.

### UNIT - III

MS - Excel: Excel Basics - Creating Work Sheets - Formulas - Functions - Charts - Coping Data, between worksheets - Case studies pay bill, profit and loss accounts etc.

### UNIT - IV

Power point - Making presentation with Ms power points - working with power point - organization chart - inserting chart from excel.

### UNIT - V

Ms-Access: Introduction - creating a new Database - saving the database - Forms - Reports.

**SEMESTER IV**

**PAPER – 4**

**OBJECT ORIENTED ANALYSIS AND DESIGN**

**UNIT - I**

System development - object basics development cycle methodologist patterns frame works unified approach UML.

**UNIT - II**

Use case models object analysis - object relations attributes methods class and object responsibilities.

**UNIT – III**

Design process design axioms class design object storage object interoperability.

**UNIT - IV**

User interface design view layer classes micro level processes view layer interface.

**UNIT - V**

Quality analysis testing strategies object orientation on testing test cases test plans continuous testing

**Text book**

Object Oriented System Development Ali Bahrami Mc Graw Hill Publication.

## RE PRACTICAL – 4

### DATA STRUCTURE USING C++ LAB

1. Program to implement stack operations using Arrays and pointers.
2. Program to implements infix expression to postfix expression conversion.
3. Program to implement queue operations using Arrays and pointers.
4. Program to implement singly linked list operations.
5. Program to implement doubly linked list operations.
6. Binary Search tree traversals (in-order, Pre-order, Post-order) using recursion.
7. Graph traversals - BFS and DFS.
8. Program to implement linear and Binary Search.
9. Sorting Techniques - Insertion, Bubble and quick sort.

**ALLIED 2**

**PAPER – 4**

**QUANTITATIVE TECHNIQUES – II**

**UNIT - I**

Network scheduling by CPM/PERT - project network diagram - Critical path method (CPM) - PERT Computations.

**UNIT - II**

Inventory models - EOQ model (a) Uniform demand rate infinite production rate with no shortages (b) Uniform demand rate finite production rate with no shortages - Inventory control with Price Breaks.

**UNIT - III**

Sequencing problem - n jobs through 2 machines, n jobs through 3 machines - two jobs through m machines - n jobs through m machines.

**UNIT - IV**

Game Theory - Two person zero sum game - pure and mixed strategies - saddle point - domain and rule - graphical solution of rectangle games.

**UNIT - V**

Replacement problem - introduction - replacement of items that deteriorate with time - replacement of items that fail completely.

**Recommended Text**

Gupta P.K. and Hira D.S. (2000) *Problems in Operations Research*, S.Chand & Co. Delhi

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1. J.K.Sharma, (2002) *Operations Research: Theory and Applications*, Macmillan, Delhi
2. Kanti Swaroop, Gupta P.K. and Manmohan, (1999) *Operation Research*, Sultan Chand & Sons., Delhi.
3. V.K.Kapoor [1989] *Operations Research*, sultan Chand & sons.
4. Ravindran A., Philips D.T. and Solberg J.J., (1987)*Operations research*, John Wiley & Sons, New York.
5. Taha H.A. (2003) *Operations Research*, Macmillan Publishing Company, New York.
6. P.R.Vittal (2003) *Operations Research*, Margham Publications, Chennai.
7. S.J.Venkatesan, *Operations Research*, J.S. Publishers, Cheyyar-604 407.
8. Arumugam & Issac, *Operation research - Vol. - I*, New Gamma Pub., House. Palayamkottai.

## APPLIED PRACTICAL

### QUANTITATIVE TECHNIQUES LAB

1. Solving Linear Programming Problem by graphical methods.
2. Solving Linear Programming Problem by simplex methods (Two variables three and more variables)
3. Solving Linear Programming Problem by Big M. methods
4. Solving Linear Programming Problem by Two phase method
5. Solving Linear Programming Problem by Duality
6. Solving Transportation problems (Balanced unbalanced)
7. Solving Assignment Problems (Balanced unbalanced)
8. Solving job sequencing Problems
9. Solving Problems related to game theory



## SKILL BASED SUBJECT

### PAPER – 2

## DATA STRUCTURE

(common to B.Sc Computer Science Course)

#### UNIT-I

Definition of a Data structure - primitive and composite Data Types, Arrays, Operations on Arrays, Ordered lists.

#### UNIT-II

Stacks - Operations - Applications of Stack - Infix to Postfix Conversion.

#### UNIT-III

Recursion, Queue- operations - Singly Linked List - Operations, Application - Representation of a Polynomial, Polynomial Addition. Doubly Linked List - Operations.

#### UNIT-IV

Trees: Binary Trees - Operations - Recursive Tree Traversals.

#### UNIT-V

Graph - Definition, Types of Graphs, Graph Traversal - DFS and BFS.

#### Text Books

1. Data structure by N.Dale,publishers narosa publishing, Edition 2000

## **N MAJOR ELECTIVE**

### **PAPER – 2**

## **INTERNET AND ITS APPLICATIONS**

### **UNIT – I**

Introduction to Computers Programming Language types History of Internet Personal Computers History of World Wide Web- Micro software .NET Java-Webresources.

### **UNIT – II**

Web Browsers- Internet Explorer- connecting to Internet Features of Internet explorer6 Searching the Internet- online help and tutorials- File Transmission Protocol (FTP) Browser settings.

### **UNIT – III**

Attaching a file, Electronic mail Creating an E-mail id Sending and Receiving mails-attaching a file-Instance messaging- other web browsers.

### **UNIT – IV**

Introduction to HTML headers - Linking- Images-special characters and line breaks- unordered lists- simple HTML programs.

### **UNIT – V**

E-marketing consumer tracking Electronic advertising search engine-CRM- credit card Payments- Digital cash – e wallets – smart card.

### **Textbook**

Internet and World Wide Web Third edition H.M.Deital, P.J. Deital and A.B.Goldberg-PHI

### **Book for Reference**

The Internet- Complete Reference Harley hahn, Tata McGraw hill

**SEMESTER V**

**PAPER - 5**

**DATABASE MANAGEMENT SYSTEMS**

**UNIT - I**

Purpose of Database - Overall System Structure - Entity Relationship Model -Mapping Constraints - Keys - E-R Diagrams.

**UNIT - II**

Relational Model - Structure - Formal Query Language - Relational Algebra - Tuple and Domain Relational Calculus.

**UNIT - III**

Structured Query Language - Basic Structure - Set Operations - Aggregate Functions - Date, Numeric, and Character Functions - Nested Sub queries - Modification of Databases - Joined Relations - DDL - Embedded SQL.

**UNIT - IV**

Relational Database Design - Pitfalls - Normalisation Using Functional Dependencies - First Normal Form-Second Normal Form-Third Normal Form-Fourth Normal Form And BCNF.

**UNIT - V**

Oracle - Introduction - SQL (DDL,DML, DCL Commands) - Integrity Constraints - PL/SQL - PL/SQL Block - procedure, function - Cursor management - Triggers - Exception Handling.

**Text Books**

1. Singh-Database systems: Concepts, Design & applications, Pearson Education.
2. Abraham Silberschatz, H.F.Korth And S.Sudarshan-Database System Concepts Mcgraw Hill Publication
3. Gerald V.Post - DBMS-Designing And Business Applications - Mcgraw Hill Publications
4. Michael Abbey and Michael.J. Corey-Oracle - A Beginners guide TMH

## **PAPER – 6**

### **JAVA PROGRAMMING**

#### **UNIT - I**

Introduction to Java - Features of Java - Object Oriented Concepts - Data Types - Variables - Arrays - Operators - Control Statements - Input and output - Scanner and System class-print(), println() and printf() methods.

#### **UNIT - II**

Classes - Objects - Constructors - Overloading method - Access Control - Static and fixed methods - Inner Classes - String Class - Inheritance - Overriding methods - Using super- Abstract class - Type Wrapper classes for primitive types- Auto boxing and Auto Unboxing - Recursion.

#### **UNIT - III**

GUI components - Common GUI Event types and Listener Interfaces- JOptionPane - JLabel, JTextField, JButton, JCheckBox, JTextarea, JComboBox, JList, JPanel - Mouse Event Handling - Adapter Classes - Key Event Handling.

#### **UNIT - IV**

Layout Managers - FlowLayout, BorderLayout, GridLayout - Graphics and Java 2D - Graphics contexts and Graphics objects - Color control - Font Control - Drawing Lines, Rectangles and Ovals - JSlider - Using menus with Frames.

#### **UNIT - V**

Packages - Access Protection - Importing Packages - Interfaces - Exception Handling - Throw and Throws - Thread - Synchronization - Runnable Interface - Inter thread Communication - Multithreading - I/O Streams - File Streams - Applets - Introduction to Java API Packages (java.lang and java.util).

#### **Text Books**

1. Programming in Java - 2<sup>nd</sup> Edition by C.Muthu, TMH Publication.
2. Java How to Program by Deitel & Deitel - 6<sup>th</sup> Edition- PHI Publication 2005..

## RE PRACTICAL - 5

### JAVA PROGRAMMING LAB

1. Finding area and Perimeter of a circle. Use Scanner class.
2. Determining the order of numbers generated randomly using Random Class.
3. String Manipulation (Substring removal, string replacement etc.,)
4. Drawing Rectangles, Ovals etc using Applet.
5. Implementing Thread based applications & Exception Handling.
6. Application using synchronization such as Thread based, Class based and synchronized statements.
7. Implementing GUI based applications using swing components (Jlabel, Jbutton, JtextField)
8. Implementing GUI based application using Layout managers and menus.
9. Application using file streams (sequential file)
10. Application using file streams (Random file)

## **PRACTICAL - 6**

### **DATABASE MANAGEMENT LAB**

1. Create a table Student-master with the following fields client\_no, name, address, city, state, pincode, remarks, bal\_due with suitable data types.
  - a) Create another table supplier\_table from client\_master. Select all the fields and rename client\_no with supplier\_no and name with supplier\_name.
  - b) Insert data into client\_master
  - c) Insert data into supplier\_master from client\_master.
  - d) Delete the selected row in the client\_master.
  
2. Create a table sales\_order with s\_order\_no and product\_no as primary key. Set other fields to store client number, delivery address, delivery date, order status.
  - a) Add a new column for storing salesman number using ALTER Command
  - b) Set the s\_order\_no as foreign key as column constraints.
  - c) Set the s\_order\_no as foreign key as table constraints.
  - d) Enforce the integrity rules using CHECK.
  
3. Create a table student\_master with the following fields name, regno, dept and year with suitable data types. Use Select command to do the following.
  - a) Select the student's name column.
  - b) Eliminate the duplicate entry in table.
  - c) Sort the table in alphabetical order.
  - d) Select all the Students of a particular department.

s with the s\_order\_no as primary key and with the description, qty\_ordered, qty\_disp, product\_rate, profit\_percent, sell\_price, supplier\_name.

- a) Select each row and compute  $\text{sell\_price} \times 0.50$  and  $\text{sell\_price} \times 1.50$  for each row selected.
  - b) Select product\_no, profit\_percent, Sell\_price where profit\_per is not between 10 and 20 both inclusive.
  - c) Select product\_no, description, profit\_percent, sell\_price where profit\_percent is not between 20 and 30.
  - d) Select the suppliername and product\_no where suppliername has 'r' or 'h' as second character.
5. Create a table master\_book to contain the information of magazine code, magazine name, publisher. Weekly/biweekly/monthly, price. Write PL/SQL block to perform insert, update, delete operations on the above table.
  6. Create a table to contain phone number, user name, address of the phone user. Write a function to search for a address using phone numbers.
  7. Create a table stock to contain the itemcode, itemname, current stock, date of last purchase. Write a stored procedure to seek for an item using itemcode and delete it, if the date of last purchase is before 1 year from the current date. If not, update the current stock.
  8. Create a table to store the salary details of the employees in a company. Declare the Cursor to contain employee number, employee name and net salary. Use Cursor to update the employee salaries.
  9. Create a table to contain the information about the voters in a particular constituency. Write a proper trigger to update or delete a row in the table.
  10. Create a table to store the details of the Aluminus in an institution. Write a PL/SQL block to change address of a particular alumni. Write proper exceptions and appropriate error messages.

## **ELECTIVE**

(to choose 1 out of the given 3)

### **PAPER – 1**

#### **1. DATA MINING**

##### **UNIT - I**

Introduction - What is Data mining , Data mining - important Data mining - various kind of data  
- Data mining Functionalities - Various kinds of Patterns Pattern Interesting Classification  
of Data mining Systems Data mining Task Primitives Integration of Data Mining System Major  
issues in Data Mining.

##### **UNIT - II**

Data Processing - Process the Data Descriptive Data Summarization - Measuring Central  
Tendency Dispersion of Data Graphic Displays of - Basic Descriptive Data Summaries Data  
Cleaning Data Integration and Transformation data Reduction.

##### **UNIT - III**

Data Warehouse OLAP Technology An overview - Data Warehouse Multidimensional Data  
Model Data Warehouse Architecture Data Warehouse Implementation.

##### **UNIT - IV**

Mining - Frequent Patterns Associations Correlations - Basic Concepts Road Map Efficient  
Scalable Frequent Tamest Mining methods Mining - Various Kinds of Association rules.

##### **UNIT - V**

Applications Trends - Data mining Applications Data mining - System Products Research  
Prototype Additional Themes on Data Mining Social impact of Data mining Trends in Data  
mining.



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1. **Data Mining** ( Concepts and Techniques ) Second Ed

**Author** : Jiawei Han and Micheline Kamber

**Publishers** : Morgan Kaufmann Publishers ( An imprint of Elsevier )

(Chapter 1 : 1.1 -1.9, 2 : 2.1 - 2.5 , 3: 3.1-3.4 , 4: 5.1 - 5.3 5 : 11.1 - 11.6)

#### Reference Books:

- 1 **Data Mining** ( Next Generation Challenges and Future Directions )

**Author** : Karguta, Joshi, Sivakumar & Yesha

**Publishers** : Printice Hall of India ( 2007 )

2. **Data Mining** (Practical Machine Learning Tools and Techniques (II Edition)

**Author** : Ian H. Witten & Eibe Frank

**Publishers** : Morgan Kaufmann Publishers (An imprint of Elsevier]

3. **Data Warehousing , Data mining & OLAP** ( Edition 2004 )

**Author** : Alex Benson, Stephen V. Smith

**Publishers** : Tata McGraw - Hill

**PAPER – 1**

**2. COMPUTER GRAPHICS**

**UNIT - I**

Introduction to computer Graphics - Video display devices- Raster scan Systems - Random Scan Systems - Interactive input devices - Hard copy devices - Graphics software - Output primitives - line drawing algorithms - initializing lines - line function - circle Generating algorithms.

**UNIT - II**

Attributes of output Primitives - line attributes - Color and Grayscale style - Area filling algorithms - Character attributes inquiry functions - Two dimensional transformation - Basic transformation - Composite transformation - Matrix representation - other transformations.

**UNIT - III**

Two - dimensional viewing - window- to view port co-ordinate transformation - clipping algorithms - Interactive input methods - Physical input devices - logical classification of input devices - interactive picture construction methods.

**UNIT - IV**

Three - dimensional concepts - Three dimensional display methods - parallel Projection - Perspective Projection - Depth Cueing - Visible line and surface identification - Three dimensional transformation.

**UNIT - V**

Three dimensional viewing - Projection - Viewing transformation - implementation of viewing operations - Hidden surface and Hidden line removal - backface removals.

**Text Books**

1. D.Hearn and M.P.Baker - Computer Graphics (C version) - Pearson Education.
2. W.M. Newman and RF.Sproull - Principles of Interactive Computer Graphics - McGraw Hill International Edition - 1979.

## **PAPER – 1**

### **3. DIGITAL IMAGE PROCESSING**

(Common to B.Sc. Computer Science Course)

#### **UNIT – I**

**CONTINUOUS AND DISCRETE IMAGES AND SYSTEMS** : Light, Luminance, Brightness and Contrast, Eye, The Monochrome Vision Model, Image Processing Problems and Applications, Vision Camera, Digital Processing System, 2-D Sampling Theory, Aliasing, Image Quantization, Lloyd Max Quantizer, Dither, Color Images, Linear Systems And Shift Invariance, Fourier Transform, Z Transform, Matrix, Theory Results, Block Matrices and Kronecker Products.

#### **UNIT – II**

**IMAGE TRANSFORMS** : 2-D orthogonal and Unitary transforms, 1-D and 2-D DFT, Cosine, Sine, Walsh, Hadamard, Haar, Slant, Karhunen – loeve, Singular value Decomposition transforms.

#### **UNIT - III**

**IMAGE ENHANCEMENT** : Point operations – contrast stretching, clipping and these holding density slicing, Histogram equalization, modification and specification, spatial operations – spatial averaging, low pass, high pass, band pass filtering, direction smoothing, medium filtering, generalized cestrum and homomorphism filtering, edge enhancement using 2-D IIR and FIR filters, color image enhancement.

#### **UNIT – IV**

**IMAGE RESTORATION** : Image observation models, sources of degradation, inverse and Wiener filtering, geometric mean filter, non linear filters, smoothing splines and interpolation, constrained least squares restoration.

#### **UNIT – V**

**IMAGE DATA COMPRESSION AND IMAGE RECONSTRUCTION FROM PROJECTIONS:** Image data rates, pixel coding, predictive techniques transform coding and vector DPCM, Block truncation coding, wavelet transform coding of images, color image coding. Random transform, back projection operator, inverse random transform, back projection algorithm, fan beam and algebraic restoration techniques.

1. Anil K.Jain, “Fundamentals of Digital Image Processing”, PHI, 1995.
2. Sid Ahmed M.A., “Image Processing”, McGraw Hill Inc, 1995.
3. Gonzalaz R. and Wintz P., “Digital Image Processing”, Addison Wesley. 2<sup>nd</sup> Ed, 1987.
4. Anil Jain, Fundamentals of Digital Image Processing - Printice Hall India.
5. Madineri A.Joshi – DIP an algorithmic approach - Printice Hall India.
6. Malay k. Pakhira – DIP and pattern Recognition - Printice Hall India.
7. B.Chanda & D.Dutta Majumder, Digital Image Processing, PHI.

**ELECTIVE**

(to choose 1 out of the given 3)

**PAPER – 2**

**1. NETWORK SECURITY AND CRYPTOGRAPHY**

(Common to B.Sc. Computer Science)

**UNIT – I**

Introduction to networks and communication media: Uses - Network Hardware - Network Software - Reference Models - Example networks - Network Standardization - Basis for data communication - Transmission Media - Wireless Transmission - Telephone Systems - Satellite communication.

**UNIT – II**

Security Attacks - Security Services - A model for internetwork security – Conventional Encryption Model - Steganography - Data Encryption Standard.

**UNIT – III**

Principles of public key cryptosystems - RSA algorithm - Key Management - Diffie-Hellman key exchange - Prime and Relatively prime numbers - Fermat's and Euler's theorems - Testing of primality - Euclid's algorithm - Chinese Remainder Theorem.

**UNIT – IV**

Authentication requirements - Authentication functions - Message authentication codes - Hash functions - Digital signatures - Authentication protocols - Digital signature standards.

**UNIT – V**

Kerberos - Pretty Good Privacy - S/MIME - IP Security Overview - IP Security Architecture - Authentication Header – Intruders – Intrusion Detection – Password Management.

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1. Andrews S.Tanenbaum, "Computer Networks", 4/E, PHI/Pearson Education.
2. Behrouz Forouzan, "Data Communication and Networking", 2 /E , TMH, 2006
3. William Stallings, "Cryptography and network security", 4/E, PHI, 2006.

**Reference books:**

1. Singh, Brijendra, "Network Security and Management", PHI, 2007.
2. Charles.P.Pleeger, "Security in Computing", PHI, 1989.
3. Hans, "Information and Communication Security", Springer Verlag, 1998.
4. Simonds, "Network Security", McGraw Hill, 1998.
5. Derek Atkins, "Internet Security", Techmedia, 1998.
6. BAXER, "Networking Security", MCGRAW-HILL, 1996.
7. V.k.panchgare, "Cryptography and information Security", PHI,

## **PAPER – 2**

### **2. CLIENT/ SERVER TECHNOLOGY**

#### **UNIT – I**

**INTRODUCTION:** Introduction to client/server computing - Main frame -centric client/server computing - Down sizing and client/server computing - Preserving mainframe applications-Investment through porting - Client/server development tools - Advantages of Client/Server computing.

#### **UNIT – II**

**CLIENT COMPONENT:** Components of client/server applications - The client - Client service, request for services, RPC, windows services, Fax/print services, Remote boot services, other remote services - Utility services and other services, Dynamic data exchange, Object linking and embedding. Common request broker architecture - the server - detailed server functionality. The networking operating system - Novell Network - LAN manager - IBM LAN server - Banyan VINES-PC network file services - Server operating systems: Netware, OS/2, Windows NT unix - system application architecture (SAA)

#### **UNIT – III**

**SERVER COMPONENT:** Components of client/server architecture - Connectivity - Open Systems Interconnect (OSI) - Inter Process Communication (IPC) - Communication interface technology - Wide area network technology - Client/server development software - Platform migration and reengineering of existing systems - Hardware components.

#### **UNIT – IV**

**DISTRIBUTED OBJECTS AND INTERNET:** Client/server with distributed objects - Distributed objects and components - from orb to business objects - Compound Documents: The client framework - OLE/DCOM - Client/server and the Internet-Web client/server. The hyper text era - the interactive era - The Java object era - The distributed object era.

#### **UNIT-V**

**APPLICATION DEVELOPMENT TOOLS:** GUI front end to 3270/5250 screens - The prototype process - Application development - Workbench architecture - Information Engineering facility Architecture - EASEL Workbench - Ellipse - SQL Windows - Power builder - SQL Tool set. APT workbench component.

1. Bewire and dawna cravis, client/server computing'-mcgraw hill-1993

**Reference Books:**

1. Beth gold-Bernstein, David Marca, 'Designing enterprise client/server systems', phi-1998.
2. Thomas S Ligon, 'Client/Server communications', Mcgraw Hill series on client/server computing-1997.
3. Robert Orfali, Dan Harley, Jeri Edward, 'The essential client/server survival guide', second edition, Galgotia 1997.



## **PAPER - 2**

### **3. DATA AND COMMUNICATION NETWORKS**

**(Common to B.Sc. Computer Science course)**

#### **UNIT - I**

A communications model - Data Communications - Data Communications Networking – computer communication architecture - Analog and Digital - Transmission - Transmission Impairments - Transmission media.

#### **UNIT - II**

Data encoding - Digital data Digital signals, Digital data Analog signals, Analog data Analog signals Data Communications Interface : Asynchronous and synchronous Transmission.

#### **UNIT - III**

Data link control: Flow controls - Error Detection - Error Control. MULTIPLEXING : Frequency Division multiplexing - Synchronous time - Division multiplexing - Statistical time division multiplexing.

#### **UNIT - IV**

Circuit switching: Circuit switching networks switching concepts - Routing in circuit switched networks.

#### **UNIT - V**

Packet switching principles - Routing in packet switching - Congestion control.

Frame relay: Frame relay Protocol Architecture – Frame relay Congestion control.

1. William Stallings, Data and Computer Communications Fifth Edition, Prentice Hall of India, 1997.

2. Forouzan: Introduction to Data Communication & Networking, McGraw-Hill, 1998.

**Reference Books:**

1. Ulysess D. Black Data Communications and Distributed Networks Third Edition, 1997. Prentice Hall of India.

2. Prakash C.Gupta, Data Communications, Prentice Hall of India, 1996.

**..L BASED SUBJECT**

**PAPER - 3**

**OPERATING SYSTEMS**

**UNIT - I**

Introduction - types of operating systems - operating system services - system calls and system programs.

**UNIT - II**

Process management - Process concepts - process scheduling - operation on process Inter process communication - CPU scheduling - scheduling algorithms - Deadlocks.

**UNIT - III**

Memory Management - Single and multiple partitioned allocation - paging -segmentation - Virtual Memory Management - Demand paging and Page Replacement Algorithms.

**UNIT - IV**

Information management - File concept - Access methods - Directory structure - allocation methods - free space management - disk scheduling.

**UNIT - V**

UNIX: Unix system - A Case Study.

**Text Book**

Abraham Silberschatz and P. B. Galvin - Operating system concepts - Addison Wesley Publication.

**SEMESTER VI**

**PAPER - 7**

**WEB TECHNOLOGY**

**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 and Files. Basic Web server Controls – Label, 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 IIS and page Directives, Error handling. Security - Authentication, IP Address, Secure by SSL and Client Certificates.

**Reference Books:**

Deitel & Deitel , Internet & World Wide Web How to program, Pearson Education

I. Bayross, Web Enabled Commercial Application Development Using HTML, DHTML, Javascript, Perl CGI, BPB Publications, 2000

J. Jaworski, Mastering Javascript, BPB Publications, 1999

T. A. Powell, Complete Reference HTML (Third Edition), TMH, 2002

G. Buczek, ASP.NET Developers Guide, TMH, 2002

**PAPER – 8**

**MOBILE TECHNOLOGY**

**UNIT - I**

Introduction- Applications-vehicles- Mobile and Wireless devices- History of wireless communications- Mobile Communication Market – A Simplified and reference model – Overview – Wireless Transmission – Signals – Antennas – Signal Propagation – Multiplexing – Modulation – Spread Spectrum.

**UNIT - II**

Medium Access Control – motivation for a MAC- SDMA – FDMA – TDMA – Comparison of S/T/F/ CDMA. – Telecommunication Systems –GSM – System Architecture – Protocols – DECT – TETRA.

**UNIT - III**

Satellite system – History – Applications – BASICS – GEO 139 – LEO 139 – MEO 140 – Routing – Localization – Handover – Examples – Broad cast Systems – Overview – Cyclic Repetition of data – Digital Video and Audio Broadcasting.

**UNIT - IV**

Mobile Network Layer – Mobile IP – Goals, assumptions- Entities and term logy – IP Packet Delivery – Tunneling and encapsulation – Optimization - Dynamic Host Configuration Protocol – ad hoc networks – Routing- Destination sequence distance vector – Dynamic source routing – Hierarchical algorithms – Alternative metrics.

**UNIT - V**

Mobile Transport layer- Traditional TCP 292 – Congestion control 292 – Slow start 292 – Fast retransmit / fast recovery 293 – Implication on mobility 294- Indirect TCP – Snooping TCP – Mobile TCP – Fast retransmit / fast recovery – transmission / time-out freezing – selective retransmission – transaction oriented TCP – WAP .

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1. JOCHEN SCHILER, "Mobile Communication", Addison Wesley, 2000.

**Reference Books:**

1. HONEYMAN P HUSTON L.B, "Communications and Consistency in Mobile File Systems", IEEE Personal communication 2(6), Dec 1996.
2. [www.awl.com/cseng](http://www.awl.com/cseng)
3. [www.dect.ch](http://www.dect.ch)
4. Biplob k Sikdar, Sipra dasbit – Mobile Computing - Printice Hall India.

## **PRACTICAL – 7**

### **WEB TECHNOLOGY LAB**

Create a simple page introducing yourself how old you are, what you do, what you like and dislike. Modify the introduction to include a bullet list of what you do and put list the 5 things you like most and dislike as numbered lists. Create another page about your favorite hobby and link it to (and from) your main page. Center something, and put a quote on one of your pages

Put an existing image on a web page. Create a table, use a heading and at least one use of row span/col. span. Color a page and some text within the page. Link to another site

Create a new file called index HTML.

Put the normal HTML document structure tags in the file.

Give it a title.

At the bottom of the page (i.e. the last thing between the body tags) put the following:

A horizontal rule.

A Link to your e-mail Address (With your name between the tag); remember to put the link to your E- Mail address within address tags.

A line break.

The date. (I have this same structure at the bottom of this page).

Above this block (which is called the footer), put a title in heading tags.

Add some text describing yourself (you can split this into multiple headings and Paragraphs if you wish).

Write a script to create an array of 10 elements and display its contents.

Write a function in Java script that takes a string and looks at it character by character.

Create a simple calculator using form fields. Have two fields for number entry & one field for the result. Allow the user to be able to use plus, minus, multiply and divide.

Create a document and add a link to it. When the user moves the mouse over the link, it should load the linked document on it's own. (User is not required to click on the link).

Create a document, which opens a new window without a toolbar, address bar or a status bar that unloads itself after one minute.



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er's name in a text field form and displays the same the  
te informing him that he has accessed the site for the  
second time, and so on.

Create a Web form for an online library. This form must be able to accept the Membership Id of the person borrowing a book, the name and ID of the book and the name of the book's author. On submitting the form, the user (the person borrowing the book) must be thanked and informed of the date when the book is to be returned. You can enhance the look of the page by using various ASPNET controls.



## **PRACTICAL – 8**

### **VISUAL PROGRAMMING LAB**

1. Building simple application.
2. Working with Intrinsic controls and ActiveX controls.
3. Application with multiple forms.
4. Application with dialogs.
5. Application with menus.
6. Application using data control.
7. Application using format dialogs.
8. Drag and Drop events.
9. Database Management.
10. Creating ActiveX controls.

**ELECTIVE**

(to choose 1 out of the given 3)

**PAPER – 3**

**1. ELECTRONIC COMMERCE**

**UNIT - I**

Electronic Commerce Framework, Traditional vs. Electronic business applications, the anatomy of E-commerce applications.

**UNIT - II**

Network infrastructure for E-Commerce - components of the I-way - Global information distribution networks - public policy issues shaping the I-way. The internet as a network infrastructure. The Business of the internet commercialization.

**UNIT - III**

Network security and firewalls - client server network security - firewalls and network security - data and message security - encrypted documents and electronic mail.

**UNIT - IV**

Electronic Commerce and world wide web, consumer oriented E-commerce, Electronic payment systems, Electronic data interchange (EDI), EDI applications in business ,EDI and E-commerce EDI implementation.

**UNIT - V**

Intraorganizational Electronic Commerce supply chain management.

Electronic Commerce catalogs, Document Management and digital libraries.

R.Kalakota and A.B. Whinston, *Frontiers of Electronic Commerce*, Addison Wesley, 1996.

**Reference Books:**

1. R.Kalakota and A.B. Whinston, *Readings in Electronic Commerce*, Addison Wesley, 1997.
2. David Kosiur, *Understanding Electronic Commerce*, Microsoft Press, 1997.
3. Soka, *From EDI to Electronic Commerce*, McGraw Hill, 1995.
4. Saily Chan, *Electronic Commerce Management*, John Wiley, 1998.

**PAPER – 3**

**2. SOFTWARE PROJECT MANAGEMENT**

**UNIT – I**

**Conventional Software Management:** The waterfall model, Conventional software management performance. Evolution of Software Economics. Software Economics, Pragmatic software cost estimation.

**UNIT – II**

**Improving Software Economics:** Reducing software product size, improving software processes, improving team effectiveness, improving Automation, achieving required quality, Peer inspections.

Life cycle phases: Engineering and production stages, inception, elaboration, construction, transition phases.

**UNIT – III**

**Model based software Architectures:** A management and technical perspective. Work Flows of the process : Software process workflows, iteration workflows.

**UNIT – IV**

**Check points of the process:** Major milestones, minor milestones, periodic status assessments. Iterative process planning. Work breakdown structures, planning guidelines, cost and schedule estimating, Iteration planning process pragmatic planning.

Project organizations and Responsibilities. Line-of-business organizations, project organizations, evolution of organizations.

**UNIT-V: Process Automation:**

Automation building blocks, the project environment. Project control and process Instrumentation. The seven care metrics, management indicators, quality indicators, life cycle expectations, pragmatic software metrics, metrics Automation.



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Title : Software Project Management

Author : Walker Royce

Publication : Pearson Education

**PAPER – 3**

**3. INTERNET AND ITS APPLICATIONS**

(Common to B.Sc. Computer Science Course)

**UNIT - I**

Connecting to the Internet – Domain Name System - Exchanging E-mail – Sending and Receiving Files - Fighting Spam, Sorting Mail and avoiding e-mail viruses – types of viruses – Harmful effects of virus - Chatting and Conferencing on the Internet – Online Chatting.

**UNIT - II**

Messaging – Usenet Newsgroup – Internet Relay chat (IRC) – Instant Messaging - Voice and Video Conferencing. Web Browsers- Internet Explorer- Features of Internet Explorer6 Searching the Internet- online help and tutorials- Browser settings.

**UNIT - III**

Overview – Web Security, Privacy, and site-blocking – Audio and Video on the web – Creating and Maintaining the Web – Web site creation concepts – Web Page Editors.

**Unit - IV**

Optimizing Web Graphics – Web Audio Files – Forms, Interactivity, and Database-Driven Web sites – File Transfer and downloading – FTP – Peer to Peer – Downloading and Installing software.

**UNIT - V**

What is Intranet – Advantages and disadvantages of intranet – components of intranet – Connecting a small LAN to the intranet.

**Textbook:**

1. Internet and World Wide Web Third edition H.M.Deital, P.J. Deital and A.B.Goldberg-PHI
2. Margaret Levine Young, "Internet and WWW", 2nd Edition, Tata McGraw Hill, 2002.
3. The Internet- Complete Reference Harley hahn, Tata McGraw hill

## **.L BASED SUBJECT**

### **PAPER - 4**

## **VISUAL PROGRAMMING**

### **UNIT - I**

Customizing a form- Writing a simple program - Tool box - Creating control-Name property- Command button-Access keys-Image control-Text boxes-Labels-Message boxes-Grid Editing tools-Variables data types-String number.

### **UNIT - II**

Displaying information-Determinate loops, indeterminate loops -Conditionals Built in function-Function and Procedure.

### **UNIT - III**

Arrays-List-Sorting and searching record - Control arrays-Grid control-Project with multiple form-Do events and sub main - Error trapping.

### **UNIT - IV**

VB objects- Dialogue boxes-Common control-Menus-MDI forms-Testing-Debugging and Optimization -Working with Graphics.

### **UNIT - V**

File and handling-File system control-File system objects.

### **Books for Study:**

1. Gary Cornell - Visual Basic 6.0 From the ground up - Tata McGraw Hill - 1999
2. Noel Jerke - Visual Basic (The Complete Reference) -Tata McGraw Hill - 1999
3. Deitel& Deitel ,T.R. Nieto - Visual Basic 6 - Pearson Edition – 2005

## INTERNET AND ITS APPLICATIONS

Creating an e mail ID (create two e mail ID with two different service provider)~Sending e mail to your friend Receiving e mail from your friend- delete a e mail ~ Attach a word file to Your e mail and send to your friend ~ Attach a spread sheet file to Your e mail and send to your friend ~ Attach a graph file to Your e mail and send to your friend ~ Attach your photograph to Your e mail and send to your friend ~ Redirect the mail you receive in your e mail ID to some other e mail ID.

Search the internet with two different search engines other than google ~ Search for the blog ~ Search for a news item ~ Search the internet to find the road route from Vellore to Chennai and find out what is the distance in Km. ~ Access the internet with two different browser other than internet explorer ~ Use yahoo messenger ~ Start a chatting session by inviting your friend online ~ Accept others invitation for chatting ~Access the facebook.

Access the internet and read two newspaper ~ Access the internet and read two news websites ~ Access the website of any one bank in India and find out what is the rate of interest for three years fixed deposit ~ Access the website of any one online bookstore and find out the price, author name, publisher name for a particular book ~ Down load music from internet and play ~ Down load video from internet and play ~ Access the website of Indian railways and find out the train timings between any two railway stations ~ Access the website of any one Indian car company website and one multinational car company website and write down the difference between them with respect to design, color, menus, user friendliness and content .



**THEORETICAL EXAMINATIONS:**

Answer any **TWO** questions out of three (2/3) for each question 25 marks. 2x25=50 marks. 10 marks for record note book. Total 60 marks.

Practical CIA	–	40 marks
University Practical	–	60 marks
Total	–	100 marks

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