THIRUVALLUVAR UNIVERSITY

BACHELOR OF SCIENCE

DEGREE COURSE

B.Sc. COMPUTER SCIENCE

UNDER CBCS

(with effect from 2008-2009)

The Course of Study and the Scheme of Examinations

Year/ Semester	Part	Subject	Paper	Title of the Paper	Ins. Hrs/ Week	Credit	Exam Hrs	Max. Marks		
								IA	Uni. Exam.	Total
I Year I Semester	I	Language	Paper I		6	3	3	25	75	100
	II	English	Paper I		6	3	3	25	75	100
	III	Core	Paper I	Digital Logic and Design	5	4	3	25	75	100
	III	Core Practical	Practical IA	PC Software Lab	4	2	3	-	-	-
	III	Allied I	Paper I	Mathematics I / Mathematical Foundations I	7	5	3	25	75	100
	IV			**Environmental Studies**	2	2	3	25	75	100
I Year II Semester	I	Language	Paper II		6	3	3	25	75	100
	II	English	Paper II		6	3	3	25	75	100
	III	Core	Paper II	Programming in C	5	4	3	25	75	100
	III	Core Practical	Practical IB	Programming in C Lab (IA & IB)	4	2	3	40	60	100
	III	Allied I	Paper II	Mathematics II / Mathematical Foundation II	7	5	3	25	75	100
	IV			**Value Education**	2	2	3	-	50	50
II Year III Semester	I	Language	Paper III		6	3	3	25	75	100
	II	English	Paper III		6	3	3	25	75	100
	III	Core	Paper III	Object Oriented Programming using c++	3	3	3	25	75	100
	III	Core Practical	Practical II	C++ Lab and Data Structure Lab	3	3	2	20	30	50
	III	Allied II	Paper III	**(to choose 1 out of 2)** 1. Physics I 2. Statistical Methods and their Applications I	4	4	3	25	75	100

Year/ Semester	Part	Subject	Paper	Title of the Paper	Ins. Hrs/ Week	Credit	Exam Hrs	Max. Marks		
								IA	Uni. Exam.	Total
	III	Allied Practical			3	-	-	-	-	-
	IV	Skill Based Elective I	Paper I	Data Structure and Algorithms	3	3	3	25	75	100
		Non-Major Elective I	Paper I	Introduction to Information Technology	2	2	3	25	75	100
II Year IV Semester	I	Language	Paper IV		6	3	3	25	75	100
	II	English	Paper IV		6	3	3	25	75	100
	III	Core	Paper IV	Java Programming	3	3	3	25	75	100
	III	Core Practical	Practical III	Java Programming Lab	3	3	3	20	30	50
	III	Allied II	Paper IV	**(to choose 1 out of 2)** 1. Physics II 2. Statistical Methods and their Applications II	4	4	3	25	75	100
	III	Allied Practical			3	2	3	20	30	50
	IV	Skill Based Elective II	Paper II	Microprocessors	3	3	3	25	75	100
		Non-Major Elective II	Paper II	Internet and its Applications	2	2	3	25	75	100
III Year V Semester	III	Core	Paper V	Database Management Systems	6	5	3	25	75	100
	III	Core	Paper VI	Operating System	6	5	3	25	75	100
	III	Core Practical	Practical IV	RDBMS (Oracle Lab)	5	5	3	40	60	100
	III	Core Practical	Practical V	Operating System (Linux/Unix) Lab	5	5	3	40	60	100
		Elective I	Paper I	Data and Communication networking / Computer Graphics	5	5	3	25	75	100
	IV	Skill Based Elective III	Paper III	Software Engineering	3	3	3	25	75	100
III Year VI Semester	III	Core	Paper VII	Visual Programming	4	4	3	25	75	100
	III	Core Practical	Practical VI	Web Technology Lab	4	4	3	20	30	50
	III	Core Practical	Practical VII	Visual Programming Lab	4	3	3	20	30	50
	III	Core	Paper VIII	Project & Viva Voce	5	5	3	25	75	100

Year / Semester	Part	Subject	Paper	Title of the Paper	Ins. Hrs/ Week	Credit	Exam Hrs	Max. Marks		
								IA	Uni. Exam.	Total
		Elective II	Paper II	Multimedia / E-Commerce	5	5	3	25	75	100
		Elective III	Paper III	Data Mining / Cryptography and network Security	5	5	3	25	75	100
	IV	Skill Based Elective IV		Web Technology	3	3	3	25	75	100
	V	Extension Activities			-	1	-	-	-	50
				Total	**180**	**140**				**3600**

THIRUVALLUVAR UNIVERSITY

B.Sc. COMPUTER SCIENCE

SYLLABUS

UNDER CBCS

(with effect from 2008-2009)

I SEMESTER

PAPER I

DIGITAL LOGIC AND DESIGN

Unit-I: Binary Systems :

Digital Computers and Digital Systems - Binary Numbers - Number Base Conversion - Octal and Hexadecimal Numbers - Compliments - Binary Codes - Binary Storage and Registers - Binary Logic - Integrated Circuits.

Unit-II: Boolean Algebra and Logic Gates :

Basic Definitions of Boolean Algebra - Axiomatic Definition of Boolean Algebra - Basic Theorems and Properties of Boolean Algebra - Boolean Functions - Canonical and Standard Forms - Other Logic Operations - Digital Logic Gates.

Unit-III: Simplification of Boolean Functions

The Map Method - Two and Three Variable Maps - Four Variable Map - Five and Six Variable Maps - Product of Sums Simplifications - NAND and NOR Implementation - Other Two Level Implementations - Don't Care Conditions .

Unit-IV: Combinational Logic

Introduction - Adders - Subtractors - Code Conversion - Binary Adder – Edcoder - Decoders – multiple and demultiplexture

UNIT-V: Sequential circuits:

Flip Flops - Registers – Shift registers-Ripple counters- Synchronous Counters - Timing Sequences - The Memory Unit.

Text Book

1. M. Morris Mano, "Digital Logic and Computer Design", PHI, 1996

Reference Books

1. Louis Neshelsky, "INTRODUCTION TO DIGITAL TECHNOLOGY", John Wiley & Sons, Third Edition, 1983.
2. Digital Logic Design - Ployd

ALLIED I

PAPER I.1

MATHEMATICS I

Objectives : To Explore the Fundamental Concepts of Mathematics

UNIT-I : ALGEBRA

Partial Fractions - Binomial, Exponential and logarithmic Series (without Proof) - Summation and approximation -Simple problems.

UNIT-II : THEORY OF EQUATIONS

Polynomial Equations with real Coefficients - Irrational roots - Complex roots- Symmetric functions of roots - Transformation of equation by increasing or decreasing roots by a constant - Reciprocal equations - Newton's method to find a root approximately - Simple problems.

UNIT-III : MATRICES

Symmetric - Skew-Symmetric - Orthogonal and Unitary matrices - Rank of a matrix -Consistency of equations - Eigen roots and eigen vectors - Cayley-Hamilton theorem (without proof)-Verification and computation of inverse matrix.

UNIT-IV : TRIGONOMETRY

Expansions of $\sin^n \theta$, $\cos^n \theta$, $\sin n\theta$, $\cos n\theta$, $\tan n\theta$ - Expansions of $\sin \theta$, $\cos \theta$, $\tan \theta$ in terms of θ - Hyperbolic and inverse hyperbolic functions - Logarithms of complex numbers.

UNIT-V : DIFFERENTIAL CALCULUS

n-th derivatives - Leibnitz theorem (without proof) and applications - Jacobians - Concepts of polar co-ordinates-Curvature and radius of curvature in Cartesian co-ordinates.

Recommended Text

P.Duraipandian and S.Udayabaskaran,(1997) *Allied Mathematics,* Vol. I & II. Muhil Publishers, Chennai.

Reference Books

1. P.Balasubramanian and K.G.Subramanian, (1997) *Ancillary Mathematics.* Vol. I & II. Tata McGraw Hill, New Delhi.
2. S.P.Rajagopalan and R.Sattanathan,(2005) *Allied Mathematics* .Vol. I & II. Vikas Publications, New Delhi.
3. P.R.Vittal (2003) *Allied Mathematics* . Marghan Publications, Chennai
4. P.Kandasamy, K.Thilagavathy (2003) Allied Mathematics Vol-I, II S.Chand & company Ltd., New Delhi-55.

PAPER I.2

MATHEMATICAL FOUNDATIONS I

Objectives

To know about

Logical operators, validity of arguments, set theory and set operations, relations and functions, linary 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, venndiagram, 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,

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

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.

UNIT-V : TWO DIMENSIONAL ANALYTICAL GEOMETRY

Straight Lines - Pair Straight Lines - Circles.

Reference Books

1. P.R.Vittal, Mathematical Foundations - Margham Publication, Chennai.
2. U. Rizwan, Mathematical Foundation - SciTech, Chennai
3. V.Sundaram & Others, Dircrete 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.

ENVIRONMENTAL STUDIES

(For all UG Degree Courses)

UNIT-I: INTRODUCTION TO ENVIRONMENTAL SCIENCES: NATURAL RESOURCES :

Environmental Sciences - Relevance - Significance - Public awareness - Forest resources - Water resources - Mineral resources - Food resources - conflicts over resource sharing - Exploitation - Land use pattern - Environmental impact - fertilizer - Pesticide Problems - case studies.

UNIT-II: ECOSYSTEM, BIODIVERSITY AND ITS CONSERVATION:

Ecosystem - concept - structure and function - producers, consumers and decomposers - Food chain - Food web - Ecological pyramids - Energy flow - Forest, Grassland, desert and aquatic ecosystem.

Biodiversity - Definition - genetic, species and ecosystem diversity - Values and uses of biodiversity - biodiversity at global, national (India) and local levels - Hotspots, threats to biodiversity - conservation of biodiversity - Insitu & Exsitu.

UNIT-III: ENVIRONMENTAL POLLUTION AND MANAGEMENT

Environmental Pollution - Causes - Effects and control measures of Air, Water, Marine, soil, solid waste, Thermal, Nuclear pollution and Disaster Management - Floods, Earth quake, Cyclone and Land slides. Role of individuals in prevention of pollution - pollution case studies.

UNIT-IV: SOCIAL ISSUES - HUMAN POPULATION

Urban issues - Energy - water conservation - Environmental Ethics - Global warming - Resettlement and Rehabilitation issues - Environmental legislations - Environmental production Act. 1986 - Air, Water, Wildlife and forest conservation Act - Population growth and Explosion - Human rights and Value Education - Environmental Health - HIV/AIDS - Role of IT in Environment and Human Health - Women and child welfare - Public awareness - Case studies.

UNIT-V: FIELD WORK

Visit to a local area / local polluted site / local simple ecosystem - Report submission

REFERENCES

1. KUMARASAMY, K., A.ALAGAPPA MOSES AND M.VASANTHY, 2004. ENVIRONMENTAL STUDIES, BHARATHIDSAN UNIVERSITY PUB, 1, TRICHY

2. RAJAMANNAR, 2004, ENVIRONEMNTAL STUDIES, EVR COLLEGE PUB, TRICHY

3. KALAVATHY,S. (ED.) 2004, ENVIRONMENTAL STUDIES, BISHOP HEBER COLLEGE PUB., TRICHY

II SEMESTER

PAPER II

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, 2nd Edition, PHI, 1988.
2. H. Schildt, C: The Complete Reference, 4th Edition, TMH Edition, 2000.
3. Kanetkar Y., Let us C, BPB Pub., New Delhi, 1999.

CORE PRACTICAL I

A. PC SOFTWARE (MS Word, Excel Power Point)

MS-WORD

1. Text Manipulations
2. Usage of Numbering, Bullets, Tools and Headers
3. Usage of Spell Check and Find and Replace
4. Text Formatting
5. Picture Insertion and Alignment
6. Creation of Documents Using Templates
7. Creation of Templates
8. Mail Merge Concept
9. Copying Text and Picture From Excel
10. Creation of Tables, Formatting Tables
11. Splitting the Screen
12. Opening Multiple Document, Inserting Symbols in Documents

MS-EXCEL

1. Creation of Worksheet and Entering Information
2. Aligning , Editing Data in Cell
3. Excel Function (Date , Time, Statistical, Mathematical, Financial Functions)
4. Changing of Column Width and Row Height (Column and Range of Column)
5. Moving, copying, Inserting and Deleting Rows and Columns
6. Formatting Numbers and Other Numeric Formats
7. Drawing Borders Around Cells
8. Creation of Charts Raising Moving
9. Changing Chart Type
10. Controlling the Appearance of a Chart

MS-POWER POINT

Working With Slides

1. Creating, saving, closing presentation
2. Adding Headers and footers
3. Changing slide layout
4. Working fonts and bullets
5. Inserting Clipart

5.1 Working with Clipart

5.2 Applying Transition and animation effects

6. Run and Slide Show

B. PROGRAMMING IN C

I. Summation of Series

1. Sin(x)
2. Cos(x)
3. Exp(x) (Comparison with built in functions)

II String Manipulation

1. Counting the no. of vowels, consonants, words, white spaces in a line of text and array of lines
2. Reverse a string & check for palindrome.

III Recursion

1. ${}^{n}P_{r}$, ${}^{n}C_{r}$
2. GCD of two number

IV Sorting and Searching

1. Bubble Sort
2. Linear Search

V Structures and Pointers

1. Preparation of Mark Sheet
2. Demonstration of pointer Arithmetic

VI File Operations

1. File Copying
2. Usage of command line arguments

ALLIED I

PAPER II.1

MATHEMATICS II

Objectives : To Explore the Fundamental Concepts of Mathematics

UNIT-I : INTEGRAL CALCULUS

Bernoulli's formula for integration by parts - Reduction formulae - Properties of definite integral and simple problems.

UNIT-II : APPLICATION OF INTEGRATION

Evaluation of double, triple integrals - Simple applications to area, volume and centroid -Fourier series for functions in $(0,2\pi)$ and $(-\pi, \pi)$.

UNIT-III : PARTIAL DIFFERENTIAL EQUATIONS

Formation, complete integrals and general integrals - Four standard types, Lagrange's equations.

UNIT-IV : LAPLACE TRANSFORMS

Laplace Transformations of standard functions and simple properties - Inverse Laplace transforms - Applications to solutions of linear differential equations of order 1 and 2-simple problems.

UNIT-V: VECTOR ANALYSIS

Scalar point functions - Vector point functions - Gradient ,divergence, curl - Directional derivatives - Unit to normal to a surface - Line and surface integrals - Guass, Stoke's and Green's theorems(without proofs) - Simple problem based on these Theorems.

Recommended Text

P.Duraipandian and S.Udayabaskaran,(1997) *Allied Mathematics*, Vol. I & II. Muhil Publishers, Chennai.

Reference Books

1. P.Balasubramanian And K.G.Subramanian,(1997) Ancillary Mathematics. Vol. I & II. Tata McGraw Hill, New Delhi.
2. S.P.Rajagopalan and R.Sattanathan,(2005) Allied Mathematics.Vol. I & II. Vikas Publications, New Delhi.
3. P.R.Vittal(2003). Allied Mathematics. Marghan Publications, Chennai.
4. P.Kandasamy, K.Thilagavathy (2003) Allied Mathematics Vol-I, II S.Chand & company Ltd., New Delhi-55.

PAPER II.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-Hermition, 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

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

integrations using simple substitutions integrations involving trigonometric functions of the form

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

UNIT-IV

Properties of definite integrals. Reduction 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 caurves, (ii) Volume of solid of revolution.

UNIT-V: ANALYTICAL GEOMETRY OF THREE DIMENSION

Planes, straight lines, spheres.

Reference Books

1. P.R.Vittal, Mathematical Foundations - Margham Publication, Chennai.
2. U. Rizwan, Mathematical Foundation - SciTech, Chennai
3. V.Sundaram & Others, Dircrete 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) Put Ltd., 1991.

VALUE EDUCATION
(For all UG Degree Courses)

UNIT-I

Value Education - Definition - relevance to present day - Concept of Human Values - self introspection - Self esteem.

UNIT-II

Family values - Components, structure and responsibilities of family - Neutralization of anger - Adjustability - Threats of family life - Status of women in family and society - Caring for needy and elderly - Time allotment for sharing ideas and concerns.

UNIT-III

Ethical values - Professional ethics - Mass media ethics - Advertising ethics - Influence of ethics on family life - psychology of children and youth - Leadership qualities - Personality development.

UNIT-IV

Social values - Faith, service and secularism - Social sense and commitment - Students and Politics - Social awareness, Consumer awareness, Consumer rights and responsibilities - Redressal mechanisms.

UNIT-V

Effect of international affairs on values of life/ Issue of Globalization - Modern warfare - Terrorism. Environmental issues - mutual respect of different cultures, religions and their beliefs.

Reference Books

1. T. Anchukandam and J. Kuttainimathathil (Ed) Grow Free Live Free, Krisitu Jyoti Publications, Bangalore (1995)
2. Mani Jacob (Ed) Resource Book for Value Education, Institute for Value Education, New Delhi 2002.
3. DBNI, NCERT, SCERT, Dharma Bharti National Institute of Peace and Value Education, Secunderabad, 2002.
4. Daniel and Selvamony - Value Education Today, (Madras Christian College, Tambaram and ALACHE, New Delhi, 1990)
5. S. Ignacimuthu - Values for Life - Better Yourself Books, Mumbai, 1991.
6. M.M.M.Mascaronhas Centre for Research Education Science and Training for Family Life Promotion - Family Life Education, Bangalore, 1993.

WEBSITES AND e-LEARNING SOURCES:

www.rkmissiondhe/.org/education.html/

www.clallam:;org/lifestyle/education.html/

www.sun.com/../edu/progrmws/star.html/

www.infoscouts.com

www.secretofsuccess.com

www.1millionpapers.com

http://militarlyfinance.umuc.edu/education/edu-network.html/

III SEMESTER

PAPER III

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

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

ALLIED II

(to choose 1 out of the given 2)

PAPER III.1

PHYSICS I

UNIT-I : PROPERTIES OF MATTER

Elasticity: Hooke's law - Elastic constants – bending of beam – Bending moment – cantilever Depression at the loaded end of a cantilever – determination of Young's modulus by non-uniform bending.

Torsion: Torsion couple – Potential energy in a twisted wire – Torsional pendulum – Time period – Rigidity Modulus – Determination of rigidity modulus by Torsional oscillation (without masses).

Viscosity: viscosity of a liquid – Viscous force – Co –efficient of viscosity of a liquid – comparison of viscosities of two liquids by graduated burette method

Surface Tension: Surface Tension – interfacial surface tension – determination of surface tension and interfacial tension by the method of drops.

UNIT-II: HEAT

Heat: Specific heat – Newton's law of cooling – determination of specific heat of a liquid using Newton's law of cooling – Emissivity and Emissive power.

Low Temperature: J.K. Effect – Positive effect – Negative effect – Temperature of inversion – liquefaction of air Linde's method – Helium I and II

UNIT-III : ELECTRICITY AND MAGNETISM

Electricity: Potentiometer – Principle – Calibration of low range voltmeter - Measurement of internal resistance of cell – measurement of an unknown resistance

Magnetism – Moment and pole strength of a magnet – Deflection magnetometer – Tan C position – Vibration magnetometer – Theory – period of oscillation – Determination of M and B_H using the deflection magnetometer in Tan C position and the vibration magnetometer.

UNIT-IV SOUND AND ACOUSTICS OF BUILDING

Sound: Transverse vibration of strings – Vibration of strings – Velocity and frequency of vibrations of a stretched string – laws of vibrations along a stretched string – sonometer – A.C. Frequency - Steel wire – Brass wire

Ultrasonics – Production by Piezo – electric method – properties and uses.

Acoustics of buildings: Reverberation – Reverberation time – Sabine's formula (definition only) – Sound absorption co-efficient of surface – conditions for the perfect acoustics.

UNIT-V :GEOMETRICAL OPTICS AND PHYSICAL OPTICS

Defects of Images (Lens): Spherical aberration - minimizing spherical abberation by using two thin lenses in contact – chromatic aberration- Achromatic combination of two thin lenses in contact

Physical Optics: Inteference – Air Wedge - description – Determination of diameter of a thin wire by air wedge

Diffraction: Theory of transmission grating – Normal Incidence – Determination of Wavelength of monochromatic source and Wavelength of mercury lines using a grating by normal Incidence.

Polarisation: Optical activity – specific rotatory power – Polarimeter – Determination of specific rotatory power of a solution using the polarimeter

Reference Books

1. Allied Physics - R. Murugesan S. Chand & Co. First Edition (2005)
2. Allied Physics - Dr. K. Thangaraj, Dr. D. Jayaraman Popular Book Department, Chennai.
3. Allied Physics - Prof. Dhanalakshmi and others.
4. Elements of Properties of Matter - D.S Mathur, S. Chand & Co. (1999).
5. Heat and Thermodynamics - N. Brijlal and Subramaniam S. Chand & Co.
6. A text book of Sound - by M. Narayanamoorthy and other National Publishing companies (1986).
7. Modern Physics - R. Murugesan S. Chand & Co.(2004)

8. Electronic Principles and applications - A. B. Bhattacharya, New Central Book Agency, Culcutta.
9. Introduction to Solid state Physics - C. Kittel, 5th Edition Wiley Eastern Ltd.
10. Renewable & sustainable energy sources - Agarwal.
11. Introduction to Fiber optics by K. Thyagarajan and Ajay Ghatak, Cambridge, University Press (1999)

PAPER III.2

STATISTICAL METHODS AND THEIR APPLICATIONS I

Objective

To understand and computing statistical aspects.

UNIT-I

Introduction - scope and limitations of statistical methods - classification of data - Tabulation of data - Diagrammatic and Graphical representation of data - Graphical determination of percentiles and quartiles.

UNIT-II

Measures of location : Arithmetic mean, median, mode, geometric mean and Harmonic mean and their properties.

UNIT-III

Measures of dispersion : Range, Quartile deviation, mean deviation, Standard deviation, combined standard deviation, co-efficient of variation.

UNIT-IV

Measures of Skew ness Karl Pearson's, Bowley's, kelly's and co-efficient of Skew ness and kurtosis based on moments.

UNIT-V

Correlation - Karl Pearson - spearman's rank correlation - concurrent deviation methods. Regression Analysis: Simple Regression Equations.

Note : The proportion between theory and problems shall be 20:80

Books for Reference

1. Fundamental of Mathematical Statistics - S.C. Gupta & V.K. Kapoor - Sultan Chand
2. Statistical Methods - Snedecor G.W. & Cochran W.G. oxford & +DII
3. Elements of Statistics - Mode . E.B. - Prentice Hall
4. Statistical Methods - Dr. S.P. Gupta - Sultan Chand & Sons

PRACTICAL II

C++ AND DATA STRUCTURE LAB

1. Program to implement classes, create object and member functions.
2. Program to implement the concept of function overloading.
3. Program to implement the concept of Operator overloading.
4. Program to implement the concept of Inheritance.
5. Program to implement file handling concepts.
6. Implement PUSH, POP operations of stack using Arrays.
7. Implement add, delete operations of a queue using Arrays.
8. Creation, insertion, and deletion in Singly linked list.
9. Binary Search tree traversals (in-order, pre-order, and post-order) using Recursion.
10. Sorting - Quick sort.

SKILL BASED SUBJECT I

PAPER I

DATA STRUCTURE AND ALGORITHMS

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, Recursion, Queue- operations.

UNIT-III

Singly Linked List - Operations, Application - Representation of a Polynomial, Polynomial Addition; Doubly Linked List - Operations.

UNIT-IV

Trees and Graphs: Binary Trees - Operations - Recursive Tree Traversals- Graph - Definition, Types of Graphs, Graph Traversal - DFS and BFS

UNIT-V

Searching- linear and binary search - Sorting Insertion, Bubble, Quick And Merge sort.

Text Books

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

NON MAJOR ELECTIVE I

PAPER I

INTRODUCTION TO INFORMATION TECHNOLOGY

UNIT-I

Introduction: History of Computer - Parts of Computer System - Hardware Devices - Software - Operating System - Examples of Operating systems - Computer Networking - Visual Editor.

UNIT-II

Microsoft Word - Microsoft Excel - Microsoft PowerPoint

UNIT-III

Introduction to Multimedia - Images - Sound -Video Desktop Publishing Basics - Page layout Programs - Text Generation - Graphics for DTP - Print Production.

UNIT-IV

Introduction to Internet - Working of Internet - Internet Services - Internet Addressing - E-Mail Basics - Web Development Tools - Introduction to HTML

UNIT-V

Information System - Management Information concepts - Planning Issues and the MIS - Organizing Issues and the MIS - Control Issues and the MIS - Decision Support Systems.

References

1. Sanjay Saxsena, "A First Course in Computer", Vikas Publishing House, 2000
2. Ron Mansfield, "Working in Microsoft Office",Tata Mcgraw Hill, 1997
3. Linda Tway, Sapphiro Pacific Lajolla, "Multimedia in Action", Academic Press,1995
4. Neil randal "Teach yourself the internet in a week", Prentice Hall of India, Second Edition, 1996.

IV SEMESTER

PAPER IV

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- Autoboxing and Auto Unboxing – Recursion.

UNIT- III

GUI components – Common GUI Event types and Listener Interfaces- JoptionPane – JLabel, JTextfield, JButton,JCheckBox,JTextarea, JComboBox, JList, JPannel – 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 – 2nd Edition by C.Muthu, TMH Publication
2. Java How to Program by Deitel & Deitel - 6th Edition- PHI Publication 2005..

PRACTICAL III

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)

ALLIED II

(to choose 1 out the given 2)

PAPER IV.1

PHYSICS II

UNIT – I WAVE MECHANICS

Wave Mechanics – De Broglie Waves – Dual nature - Experimental study of matter waves – Davisson and Germer's experiment – G.P. Thomson's experiment – Heisenberg's uncertainty Principle – The position and momentum of a particle

UNIT – II NUCLEAR PHYSICS

Particle accelerators – cyclotron, particle detectors – GM Counter

Artificial Transmutation – Rutherford's experiment – The Q value equation for a nuclear reaction – Threshold energy – Nuclear reactions

Conservation Laws: Conservation of Charge - Conservation of Nucleons – Conservation of Mass – Energy – Conservation of Parity - Quantities conserved and quantities not conserved in a nuclear reaction

Biological effects of radiation – control of radiation hazards.

UNIT – III ENERGY PHYSICS

Sources of conventional energy – Need for non-conventional energy – resources – solar energy utilization – solar water heater – solar drier - conversion of light into electrical energy – solar cell – merits and demerits of solar energy - wind energy – its conversion systems – energy from Bio mass – Bio gas generation – Industrial and space application.

UNIT – IV CRYSTALLOGRAPHY AND FIBRE OPTICS

Crystallography: The crystal structure – Unit cell – Miller indices – Reciprocal lattice vectors-properties of Reciprocal Lattice-Bragg's law.

Fiber Optics: **Principle – classification of optical fibres – fiber optic communication system block diagram.**

UNIT –V : ELECTRONICS

Electronics: **Zener diode – Characteristics – Voltage regulation using zener diode – LED – uses of LED.**

Digital electronics: AND, OR NOT, NAND and NOR gates – NAND and NOR as universal building blocks – Fabrication of a Integrated circuits by monolithic technology – Advantages and limitations of an integrated circuit – LSI, MSI and VLSI.

Reference Books

1. Allied Physics - R. Murugesan S. Chand & Co. First Edition (2005)
2. Allied Physics - Dr. K. Thangaraj, Dr. D. Jayaraman Popular Book Department, Chennai.
3. Allied Physics - Prof. Dhanalakshmi and others.
4. Elements of Properties of Matter - D.S Mathur, S. Chand & Co. (1999).
5. Heat and Thermodynamics - N. Brijlal and Subramaniam S. Chand & Co.
6. A text book of Sound - by M. Narayanamoorthy and other National Publishing companies (1986).
7. Modern Physics - R. Murugesan S. Chand & Co.(2004)
8. Electronic Principles and applications - A. B. Bhattacharya, New Central Book Agency, Culcutta.
9. Introduction to Solid state Physics - C. Kittel, 5th Edition Wiley Eastern Ltd.
10. Renewable & sustainable energy sources - Agarwal.
11. Introduction to Fiber optics by K. Thyagarajan and Ajay Ghatak, Cambridge, University Press (1999)

PAPER IV.2

STATISTICAL METHODS AND THEIR APPLICATIONS II

Objective

To apply statistical techniques in real life situations

(The proportion between theory and problems shall be 20:80)

UNIT-I

Curve fitting by the methods of least squares -

$Y = a x + b$, $Y = a x^2 + b x + c$, $Y = a x^b$, $Y = a e^{bx}$

UNIT-II

Sample Space - events - probability - Addition and Multiplication Theorem - conditional probability - Baye's Theorem. Mathematical expectation Addition and Multiplication theorem, Chebychev's Inequality.

UNIT-III

Standard distributions - Binomial, Poisson, normal distribution and fitting of these distributions.

UNIT-IV

Test of Significance small sample and large sample test based on mean, S.D. correlation and proportion - confidence interval.

UNIT-V

Analysis of variance - one and two way classifications - Basic principle of design of Experiments - randomisation, replication and local control - C.R.D., R.B.D. and L.S.D.

Books for Reference:

1. Fundamental of Mathematical Statistics - S.C. Gupta & V.K. Kapoor - Sultan Chand
2. Fundamental of Applied Statistics - S.C. Gupta & V.K. Kapoor – Sultan Chand
3. Statistical Methods - Snedecor G.W. & Cochran W.G. oxford & +DII
4. Elements of Statistics - Mode . E.B. – Prentice Hall

ALLIED PRACTICAL

PHYSICS

1. Young's Modulus - Non-uniform bending method using Pin and Microscope.
2. Rigidity modulus - Static Torsion method using Scale and Telescope.
3. Rigidity Modulus - Torsional oscillation method (without symmetric masses).
4. Determination of Co-efficient of viscosity - Graduated Burette.
5. Specific heat capacity of a liquid - by Newton's law of cooling.
6. Sonometer - Determining A.C Frequency. (Screw Gauge is given).
7. Newton's Rings - Radius of curvature.
8. Spectrometer Grating - Normal incidence - Wavelength of mercury lines.
9. Potentiometer - measurement of internal resistance of a cell.
10. Potentiometer - calibration of low range voltmeter.
11. Determination of M and B_H using Deflection magnetometer in Tan C position and vibration magnetometer.
12. Figure of merit and voltage sensitiveness of galvanometer.
13. Construction of AND, OR, NOT gates using diodes and NOT by transistors, NAND as universal gate.
14. Zener diode - Voltage Regulation.

ALLIED PRACTICAL

STATISTICAL METHODS AND THEIR APPLICATIONS PRACTICAL

Note

Use of Scientific Calculator shall be permitted for Practical Examination. Statistical and Mathematical Tables are to be provided to the students in the Examination Hall.

ALLIED PRACTICAL

1. Formation of uni-variate and bi-variate frequency distribution
2. Diagrams and Graphs
3. Measures of Location
4. Measures of Dispersion
5. Skewness and Kurtosis
6. Correlation and Regression
7. Curve Fitting : $y = ax+b$, $y=ax^2+bx+c$, $y=ax^b$, $y=ae^{bx}$
8. Fitting of distributions - Binomial, Poisson, Normal
9. Test of significance small sample and large sample tests
10. Analysis of Variance: one way classification, Two way classification Design of Experiments - C.R.D, R.B.D, L.S.D

Books for Reference

1. Practical Statistics
2. Statistical Methods by S.P. Gupta, Sultan chand & Sons
3. Fundamental of Applied Statistics - S.C. Gupta & V.K. Kapoor

SKILL BASED SUBJECT II

PAPER II

MICROPROCESSORS

UNIT – I

Introduction to Micro Computers, Microprocessors and Assembly Languages – Micro Processor Architecture and its operations – 8085 MPU – 8085 Instruction Set and Classifications.

UNIT – II

Writing assembly level programs – Programming techniques such as looping , counting and indexing addressing nodes – Data Transfer Instructions – Arithmetic and Logic Operations – Dynamic Debugging.

UNIT – III

Counters and time delays – Hexadecimal counter – Modulo 10 counter – Pulse Timings for Flashing lights – Debugging Counter and Time delay program – stack – subroutine – conditional call and return instructions.

UNIT – IV

BCD to Binary and Binary to BCD conversions – BCD to HEX and Hex to BCD conversions – ASCII to BCD and BCD to ASCII conversion – BCD to seven segment LED Code conversions. Binary to ASCII and ASCII to Binary Conversions – Multibyte Addition – Multibyte Subtraction – BCD addition – BCD Subtraction – Multiplication and Division.

UNIT - V

Interrupt – Implementing interrupts – Multiple Interrupt – 8085 – trap – problems on implementing 8085 interrupt – DMA Memory interfaces – RAM & ROM – I/O interface – Direct I/O - Memory Mapped I/O – Programmable Peripheral interface 8255

Books For Study:

1. R.S.Gaonkar, Microprocessor Architecture – Programming and Application with 8085/8080A, Wiley Eastern Limited, 1990.
2. A.Mathur, Introduction to Microprocessor, Third Edition, Tata McGrawHill Publishing Co.Ltd.,1993.

NON MAJOR ELECTIVE II

PAPER II

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 and e-wallets micro payments-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

V SEMESTER

PAPER V

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 VI

OPERATING SYSTEM

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.

PRACTICAL IV

RDBMS (Oracle 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 foregin 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.

4. Create a table sales_order_details with the s_order_no as primary key and with the following fields: product_no, description, qty_ordered, qty_disp,product_rate, profit_percent, sell_price, supplier_name.

a) Select each row and compute sell_price*.50 and sell_price*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. Wrtie 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 particualr alumni. Write proper exceptions and appropriate error messages.

PRACTICAL V

OPERATING SYSTEM (LINUX/UNIX) LAB

1. Creation of a child, orphan and Zombie process.
2. IPC using pipes.
3. IPC using message queues.
4. Simulation of FCFS process scheduling.
5. Simulation of ROUND ROBIN process scheduling.
6. Simulation of SJF process scheduling.
7. Demonstration of process synchronization using signals.
8. Demonstration of process synchronization using semaphores.
9. Deadlock avoidance using banker's algorithm

ELECTIVE I

(to choose 1 out of the given 2)

PAPER I.1

DATA AND COMMUNICATION NETWORKS

UNIT-I

A communications model - Data Communications - Data Communications Networking - computer communication architecture - standards Data Transmission - Concepts and terminology - 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 - Line configuration - Interfacing.

UNIT-III

Data link control: Flow controls - Error Detection - Error Control - High Level Data Link Control (HDLC) - 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 - Packet switching principles - Routing in packet switching - Congestion control.

UNIT-V

Frame relay: Frame relay Protocol Architecture - Frame relay call control user data transfer - Networks functions - Congestion control.

ASYNCHRONOUS TRANSFER MODE (ATM) Protocol Architecture - ATM logical connection - ATM Cells - Transmission of ATM cells - ATM adaption layer - Traffic and congetion control.

Text Books

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.

PAPER I.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.

SKILL BASED SUBJECT III

PAPER III

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.

UNIT-V

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

VI SEMESTER

PAPER VII

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

PRACTICAL VI

Web Technology Lab

1. 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
2. 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
3. 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).
4. Write a script to create an array of 10 elements and display its contents.
5. Write a function in Java script that takes a string and looks at it character by character.
6. 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.

7. 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).
8. Create a document, which opens a new window without a toolbar, address bar or a status bar that unloads itself after one minute.
9. Create a document that accepts the user's name in a text field form and displays the sanie the next time when the user visits the site informing him that he has accessed the sitefor the second time, and so on.
10. 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 VII

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

Application using format dialogs

7. Drag and Drop events
8. Database Management
9. Creating ActiveX controls

PAPER VIII

PROJECT & VIVA-VOCE

- The objective of the project is to motivate them to work in emerging/latest technologies, help the students to develop ability, to apply theoretical and practical tools/techniques to solve real life problems related to industry, academic institutions and research laboratories.
- The project is of 5 hours/week for one (semester VI) semester duration and a student is expected to do planning, analyzing, designing, coding, and implementing the project. The initiation of project should be with the project proposal. The synopsis approval will be given by the project guides.
- The project proposal should include the following:
  - Title
  - Objectives
  - Input and output
  - Details of modules and process logic
  - Limitations of the project
  - Tools/platforms, Languages to be used
  - Scope of future application
- For the project work, the guide(internal) evaluate the work for 25 marks based on the performance of the candidates during the development of the project and the external examiner will evaluate the project work as follows:
  - Project Report – 30 marks
  - Viva -Voce - 45 marks
- The Project work should be either an individual one or a group of not more than three members.

ELECTIVE II

(to choose 1 out of the given 2)

PAPER II.1

MULTIMEDIA

UNIT- I

Definition - Classification - MM application - MM H/w - MM s/w - CDROM - DVD.

UNIT-II

MM Audio: Digital medium - Digital audio technology - sound cards - recording - editing - MP3 - MIDI fundamentals - Working with MIDI - audio file formats - adding sound to MM project.

UNIT-III

MM TEXT: Text in MM - MM graphics: coloring - digital imaging fundamentals - development and editing - file formats - scanning and digital photography

UNIT-IV

MM Animation : Computer animation fundamentals - Kinematics - morphing - animation s/w tools and techniques.

MM Video : How video works - broadcast video standards - digital video fundamentals - digital video production and editing techniques - file formats.

UNIT-V

MM Project : stages of project - MM skills - design concept - authoring - planning and costing – MM team

Reference Books

1. Multimedia Magic - S.Gokul revised and updated second edition - BPB
2. Multimedia Making it Work - Tay Vaughen 6th edition - TMH

PAPER II.2

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.

Text Book

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.

ELECTIVE III

(to choose 1 out of the given 2)

PAPER III.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 Ltemset 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

Text Book :

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 III.2

CRYPTOGRAPHY AND NETWORK SECURITY

UNIT – I

Security problems in computer networks – kinds of security breaches – security services – conventional encryption model – classical encryption techniques.

UNIT – II

Block cipher – design principles – Data Encryption Standard (DES) – triple DES – International Data Encryption Algorithm (IDEA) – RC2, RC5 – Blowfish – CAST 128 – Confidentiality using conventional encryption.

UNIT – III

Principle of public key cryptosystems – RSA Algorithm – Elliptic curve cryptography – message authentication and Hash function – MD5 message digest Algorithm – Secure Hash Algoriothm(SHA-1).

UNIT – IV

Digital signatures and Authentication protocols –Kerberos – X.509 directory Authentication service – E-mail security – Pretty Good privacy, S/MIME – IP Security –Web security.

UNIT – V

Intruders – Intrusion techniques – Intrusion detection – viruses and related threats – worms – Firewalls.

TEXTBOOK:

1. William Stallings, "Cryptography and Network Security: Principles and practice", Pearson Education Inc., 1999.

REFERENCES:

1. Simonds, "Network Security", McGraw Hill, 1998.
2. Baxer, "Networking Security", McGraw Hill, 1996.
3. Derek Atkins, "Internet Security", Techmedia, 1998.

SKILL BASED SUBJECT IV

PAPER IV

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, Files. Basic Web server Controls- L.able, 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

1. Deitel & Deitel ,internet & world wide web How to program, Pearson Education
2. I. Bayross, Web Enabled Commercial Application Development Using HTML, DHTML, Javascript, Pen CGI, BPB Publications, 2000
3. J. Jaworski, Mastering Javascript, BPB Publications, 1999
4. T. A. Powell, Complete Reference HTML (Third Edition),TMH, 2002
5. G. Buczek, ASP.NET Developers Guide, TMH, 2002

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