



**BHARATHIDASAN UNIVERSITY, TIRUCHIRAPPALLI – 620 024.**  
**B.SC. SOFTWARE DEVELOPMENT – Course Structure under CBCS**  
**(For the candidates admitted from the academic year 2010-2011 onwards)**

Semester	Part	Course	Title	Instru. Hours/ Week	Credit	Exam Hours	Marks		Total	
							Int.	Extn.		
I	I	Language Course – I (LC) – Tamil*/Other Languages ** #		6	3	3	25	75	100	
	II	English Language Course - I (ELC)		6	3	3	25	75	100	
	III		Core Course – I (CC)	Programming in C	6	4	3	25	75	100
			Core Course – II (CC)	Programming in C LAB	4	3	3	40	60	100
			First Allied Course –I (AC)	Algebra and Calculus	5	3	3	25	75	100
		First Allied Course – II (AC)	Numerical Analysis and Statistics	3	-	-	-	-	-	
				30	16				500	
II	I	Language Course – II (LC) – Tamil*/Other Languages ** #		6	3	3	25	75	100	
	II	English Language Course – II (ELC)		6	3	3	25	75	100	
	III		Core Course – III(CC)	Computer Organisation and Architecture	4	4	3	25	75	100
			Core Course – IV(CC)	Photoshop and Flash Lab	3	3	3	40	60	100
			First Allied Course – II (AC)	Numerical Analysis and Statistics	3	3	3	25	75	100
			First Allied Course – III (AC)	Operations Research	4	4	3	25	75	100
	IV	Environmental Studies		2	2	3	25	75	100	
V	Value Education		2	2	3	25	75	100		
				30	24				800	
III	I	Language Course – III (LC) – Tamil*/Other Languages ** #		6	3	3	25	75	100	
	II	English Language Course - III (ELC)		6	3	3	25	75	100	
			Core Course – V (CC)	Java Programming	5	5	3	25	75	100
			Core Course – VI (CC)	Java Programming Lab	3	3	3	40	60	100
	III		Second Allied Course – I (AC)	Management and Financial Accounting	5	4	3	25	75	100
			Second Allied Course– II (AC)	Management Information Systems	3	-	-	-	-	-
			Non Major Elective I - for those who studied Tamil under Part I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree programme	Working Principles of Internet	2	2	3	25	75	100
				30	20				600	
IV	I	Language Course –IV (LC) - Tamil*/Other Languages ** #		6	3	3	25	75	100	
	II	English Language Course – IV (ELC)		6	3	3	25	75	100	

	III	Core Course – VII (CC)	HTML LAB	2	2	3	40	60	100
		Core Course – VIII (CC)	Web Design	4	4	3	25	75	100
		Second Allied Course– II (AC)	Management Information Systems	3	3	3	25	75	100
		Second Allied Course–III (AC)	Organizational Behaviour	5	3	3	25	75	100
	IV	Non Major Elective II - for those who studied Tamil under Part I a) Basic Tamil for other language students b) Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree programme	Recent Trends in Enterprise Information Technology	2	2	3	25	75	100
		Skill Based Elective I		2	4	3	25	75	100
				30	24				800
V	III	Core Course IX [CC]	Data Structures and Algorithms	6	5	3	25	75	100
		Core Course X [CC]	Software Engineering	5	4	3	25	75	100
		Core Course XI [CC]	Operating System	5	4	3	25	75	100
		Core Course XII [CC]	Operating System LAB	3	3	3	40	60	100
		Core Course XIII [CC]	MySQL LAB	2	2	3	40	60	100
		Major Based Elective - I	Database Systems / Programming in ASP / System Analysis and Design	5	4	3	25	75	100
	IV	Skill Based Elective II		2	4	3	25	75	100
		Skill Based Elective III		2	4	3	25	75	100
				30	30				800
VI	I	Core Course XIV [CC]	Software Project Management	5	4	3	25	75	100
		Core Course XV [CC]	Software Quality Assurance	4	4	3	25	75	100
		Core Course XVI [CC]	Dot Net	4	4	3	25	75	100
		Core Course XVII [CC]	Software Project Management LAB	3	2	3	40	60	100
		Major Based Elective - II	Software Testing / Software Quality Measurements / E-Commerce	4	3	3	25	75	100
		Major Based Elective - III	Computer Networks / Linux Administration / Open Source Technology	4	3	3	25	75	100
		Major Based Elective - IV	Mini Project ( Students to do it in their respective Colleges) / Linux Lab / Dot Net Lab	5	4	3	40	60	100
	IV	Extension activities		-	1	-	-	-	-
		Gender Studies		1	1	3	25	75	100
				30	26				800
		<b>Total</b>	<b>180</b>	<b>140</b>				<b>4300</b>	

- \* for those who studied Tamil upto +2 (Regular Stream)
- \*\* Syllabus for other Languages should be on par with Tamil
- # those who studied Tamil upto +2, but opt for other languages in degree level should studied special Tamil
- \*\*\* Non Major Elective I - for those who studied Tamil under Part I
- a) Basic Tamil for other language students
- b) Special Tamil for those who studied Tamil upto +2 but opt for other languages in degree programme

**Note:**

	<b>Internal Marks</b>	<b>External Marks</b>
1. Theory	25	75
2. Practical / Mini Project	40	60
3. Separate passing minimum is prescribed for Internal and External marks		
The passing minimum for CIA shall be 40% out of 25 marks [i.e. 10 marks]		
The passing minimum for University Examinations shall be 40% out of 75 marks [ i.e. 30 marks]		

- \*\* Syllabus for other Languages should be on par with Tamil
- # those who studied Tamil upto +2, but opt for other languages in degree level should study special Tamil

**Note:**

	<b>Internal Marks</b>	<b>External Marks</b>
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The passing minimum for University Examinations shall be 40% out of 75 marks [ i.e. 30 marks]		

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## **CORE COURSE – I – PROGRAMMING IN C**

### **Unit I**

Introduction to C – Constants, Variables, Data types – Operator and Expressions.

### **Unit II**

Managing Input and Output operations – Decision Making and Branching – Decision making and Looping.

### **Unit III**

Arrays – Character Arrays and Strings – User defined Functions.

### **Unit IV**

Structures and unions – Pointers – File management in C.

### **Unit V**

Dynamic memory allocation – Linked lists- Preprocessors – Programming Guide lines.

### **Text Book:**

1. Balagurusamy E., Programming in ANSI C, Third edition, Tata McGraw-Hill, 2006  
( ISBN – 0-07-053477-2 )

[Unit-1 (Chapters - 1, 2, 3) ; Unit-2 (Chapters – 4, 5, 6) ; Unit-3 (Chapters – 7,8,9) ;  
Unit-4 (Chapters – 10, 11,12); Unit-5 (Chapters – 13,14,15) ]

### **Reference Book:**

1. Byron S Gottfried, “Programming with C”, Schaum’s Outline Series – Tata McGraw Hill Publications, New Delhi.

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## **CORE COURSE II – PROGRAMMING IN C LAB**

1. Solution of a Quadratic Equation (all cases).
2. Sum of Series (sine, cosine, exponential).
3. Ascending and descending order of numbers using Arrays (Use it to find Largest and Smallest Numbers).
4. Sorting of names in Alphabetical order.
5. Matrix operations (Addition, Subtraction, Multiplication – using functions).
6. Finding factorials, generating Fibonacci Numbers using recursive functions.
7. String manipulations without using string functions (string length, string comparison, string copy, palindrome checking, counting words and lines in strings (Use function pointers).
8. Creation and processing of Sequential files for payroll and Mark list preparation (use structures for Record Description).
9. Basic exercise in dynamic memory allocation & Pointer usage.
10. Solution of Algebraic and transcendental Equations: Newton-Ralphson method.
11. Numerical Integration – Trapezoidal Rule.
12. Numerical Integration –Simpson's (1/3, 3/8) Rules.

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## ALLIED COURSE I (AC) - ALGEBRA AND CALCULUS

### UNIT I

Theory of Equations: Relation between roots & coefficients – Transformations of Equations – Diminishing, Increasing & multiplying the roots by a constant- Forming equations with the given roots – Rolle's Theorem, Descartes's rule of Signs(statement only) –simple problems.

### UNIT II

Matrices : Singular matrices – Inverse of a non-singular matrix using adjoint method - Rank of a Matrix –Consistency - Characteristic equation , Eigen values, Eigen vectors – Cayley Hamilton's Theorem (proof not needed) –Simple applications only

### UNIT III

Differentiation: Maxima & Minima – Concavity , Convexity – Points of inflexion - Partial differentiation – Euler's Theorem - Total differential coefficients (proof not needed ) –Simple problems only.

### UNIT IV

Integration : Evaluation of integrals of types

$$1] \int \frac{px+q}{ax^2+bx+c} dx \quad 2] \int \frac{px+q}{\sqrt{ax^2+bx+c}} dx \quad 3] \int \frac{dx}{a+b \sin x}$$
$$4] \int \frac{dx}{a+b \cos x}$$

Evaluation using Integration by parts – Properties of definite integrals – Fourier Series in the range  $(0, 2\pi)$  – Odd & Even Functions – Fourier Half range Sine & Cosine Series

### UNIT V

Differential Equations: Variables Separables – Linear equations – Second order of types  $(aD^2 + bD + c)y = F(x)$  where a,b,c are constants and  $F(x)$  is one of the following types (i)  $e^{Kx}$  (ii)  $\sin(kx)$  or  $\cos(kx)$  (iii)  $x^n$ , n being an integer (iv)  $e^{Kx} f(x)$

### TEXT BOOK(S)

- [1] T.K.Manickavasagam Pillai & others, Algebra, Volume I, S.V Publications , 1985 Revised Edition (Units I, II)
- [2] S. Narayanan, T.K. Manicavachagam Pillai, Calculus, Vol.II, S. Viswanathan Pvt Limited, 2003. (Units III, IV and V)

### REFERENCE(S)

- [1] M.L. Khanna, Differential Calculus, Jaiprakashnath and Co., Meerut-2004.

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## **ALLIED COURSE – II (AC)**

### **NUMERICAL ANALYSIS AND STATISTICS**

#### **UNIT I**

Algebraic & Transcendental equations : Bisection Method , Newton Raphson Method , Iteration method - Finite differences –Forward , Backward differences – Newton's forward & backward difference interpolation formulae. Lagrange's interpolating polynomial.

#### **UNIT II**

Numerical differentiation - Numerical Integration using Trapezoidal rule and Simpson's first & second rules (proof not needed ) - Solutions to Linear Systems – Gaussian Elimination Method – Jacobi & Gauss Siedal iterative methods – Theory and problems

#### **UNIT III**

Numerical solution of ODE : Solution by Taylor Series Method , Euler's Method , Runge - Kutta 2<sup>nd</sup> order method- Adam's Predictor Corrector Method and Milne's Predictor Corrector Methods

#### **UNIT IV**

Mean , Median , Mode , Standard Deviation -Expectation –Variance and covariance – Correlation and Regression –Properties of Simple Correlation and regression coefficients – Simple Numerical Problems only .

#### **UNIT V**

Distributions : Discrete & Continuous distributions : Binomial, Poisson , Normal distributions- Properties of normal distributions –Relation between Binomial, Poisson, Normal distributions

#### **TEXT BOOK(S)**

- [1] S.S.Sastry, Numerical Analysis (Unit 1 , 2 , 3 )
- [2] Gupta.S.C & Kapoor,V.K, Fundamentals of Mathematical Statistics, Sultan Chand & sons, New Delhi -1994. (Units 4 & 5)

#### **REFERENCE(S)**

- [1] M.K. Jain, S.R.K. Iyengar and R.K. Jain, Numerical Methods for Scientific and Engineering Computation, New Age International Private Limited, 1999.
- [2] C.E. Froberg, Introduction to Numerical Analysis, II Edn., Addison Wesley, 1979.

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# **CORE COURSE – III - COMPUTER ORGANIZATION AND ARCHITECTURE**

## **Unit I**

Instruction codes – Computer Instructions – Timing and control – execution of instruction – input / output and interrupt.

## **Unit II**

Processor – bus organization – ALU – Stack Organization – instruction format – Addressing modes – data transfer and manipulation – program control – microprocessor organization – Parallel Processing: Micro program control organization – control - memory – address – sequencing – micro – program sequence – micro instruction formats.

## **Unit III**

Comparison and subtraction of unsigned binary number – Addition and subtraction algorithm – multiplication algorithm – division algorithm – processor configuration.

## **Unit IV**

Peripheral device – I/o interface – asynchronous data transfer – direct memory access input output processor – priority interrupt – multiprocessor system organization.

## **Unit V**

Volatile and non volatile memory – RAM – ROM – digital recording – techniques – auxiliary memory – microcomputer memory – hierarchy – associative memory – virtual memory cache memory.

### **Text Books:**

1. Computer System Architecture – M.Morris Mano
2. Digital Computer Fundamentals – Thomas C.Bartee.

### **Reference:**

- 1.Computer Organization and Programming – C.W. Gean.

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## **CORE COURSE – IV - PHOTOSHOP AND FLASH LAB**

### **Photoshop :**

1. (i) Handling different file formats and interchanging them, changing the resolution, color, grayscales and size of the images  
(ii) Using brushes and creating multicolor real life images
2. Cropping, rotating, overlapping, superimposing, pasting photos on a page
3. Creation of a single image from selected portions of many
4. Developing a commercial brochure with background tints
5. Creating an image with multi-layers of images and texts.
6. Applying masks and filtering on images

### **Flash :**

Develop an image(s) and do the following.

1. Basic Drawing and Painting.
2. Working with Strokes and Fills
3. Creating Custom Colors, Gradients, and Line Styles Transforming and Grouping Objects
4. Creating and Managing Multiple Layers
5. Converting Text into Shapes
6. Animate using motion, shape, Tweening , and actions

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# **ALLIED COURSE – III (AC)**

## **OPERATIONS RESEARCH**

### **UNIT I**

Operations Research : Introduction - Basics of OR – OR & decision making – Role of Computers in OR - Linear programming formulations & graphical solution of two variables – Canonical & standard forms of LPP

### **UNIT II**

Simplex Method : Simplex Method for  $<$  ,  $=$  ,  $>$  constraints – Charne’s method of penalties– Two phase Simplex method.

### **UNIT III**

Transportation problem : Transportation algorithm –Degeneracy algorithm – Degeneracy in Transportation Problem , Unbalanced transportation problem- Assignment algorithm –Unbalanced Assignment problem .

### **UNIT IV**

Sequencing problem : Processing of n jobs through two machines – Processing of n jobs through 3 machines – processing of two jobs through m machines.

### **UNIT V**

Networks: Network – Fulkerson’s rule- measure of activity –PERT computation – CPM computation .- Resource scheduling.

### **TEXT BOOK(S)**

- [1] Manmohan & Gupta , Operations Research, Sultan Chand Publishers, New Delhi

### **REFERENCE(S)**

- [1] Prem Kumar Gupta and D.S. Hira, Operations Research : An Introduction, S. Chand and Co., Ltd. New Delhi,
- [2] Hamdy A. Taha, Operations Research (7<sup>th</sup> Edn.), McMillan Publishing Company, New Delhi, 1982.

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# CORE COURSE – V - JAVA PROGRAMMING

## Unit I

Data Types and Variables: The Simple Types - Literals - Variables - Type Conversion and Casting - Automatic Type Promotion in Expressions - Arrays Strings - Classes and Methods: Class Fundamentals - Declaring Class Objects Constructors - Garbage Collection - The finalize ( ) Method - Overloading Methods - Argument Passing - Recursion - Understanding Static - Access Control--: The main ( ) method.

## Unit II

Operators: Arithmetic Operators - Bit wise Operators - Relational Operators Boolean Logical Operators - The Assignment Operator - The? Operator - The Dot Operator - Operator Precedence - Inheritance, Packages, and Interfaces: Inheritance - Using Super - When Constructors are called - Method Overriding - Abstract Classes - The final Keyword - Packages - Importing Packages - Access Control Interfaces - Keyword Summary.

## Unit III

The Language Classes and Interfaces - The Utility Classes and Interfaces - The Input/Output Classes and Interfaces.

## Unit IV

The Networking Classes and Interfaces - The Java Applet Class and Interfaces.

## Unit V

The Abstract Window Toolkit Classes and Interfaces - The Event Classes and Interfaces. .

### Text Book :

1."Java - Programmer's Reference", Herbert Schildt with Joe O'Neil, Tata McGraw Hill, 1998.

### Reference Books:

1. "Internet Programming", Kris James Ph.D., and Ken Cope, Galgotia Publication, Reprint 2000  
3. "Complete Reference", 'Patrick Naughton and Herbert Schildt, 3rd Edition, Tata McGraw Hill

Publishing Company Ltd., 1999.

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## **CORE COURSE – VI – JAVA PROGRAMMING LAB**

1. Write a program to sort the given numbers using arrays.
2. Write a program to implement the FIND and REPLACE operations in the given multiple text.
3. Write a program to implement a calculator to perform basic arithmetic Operations.
4. Write a program to find the area of a rectangle using constructor
5. Write a program to find the student's percentage and grade using command line arguments.
6. Write a program to draw circle or triangle or square using polymorphism and inheritance.
7. Implement multiple inheritance concepts in java using interface, you can choose your own example of a company or education institution or a general concept which requires the use of interface to solve a particular problems.
8. Write a program to create threads and assign priorities to them
9. Write a program to develop an applet to play multiple audio clips using multithreading.
10. Write a program to create a window with three check boxes called red, green and blue. The applet should change the colors according to the selection.

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## **SECOND ALLIED COURSE I MANAGEMENT AND FINANCIAL ACCOUNTING**

### **Unit I**

Definition of Accounting, Functions of Financial Accounting – Limitations of financial Accounting – Meaning and objectives and scope of management Accounting – Distinction between Financial Accounting and Management Accounting – role of Management Accountant.

### **Unit II**

Accounting principles, concepts, conventions – Rules of Double entry system, Double entry Vs single entry – Journal – Ledger – Trial Balance.

### **Unit III**

Trading Account, Profit and loss Account, Balance sheet, Classification of Assets and liabilities. Computer accounting and Algorithm – areas of applications of computers in Financial Accounting – Algorithm requisites of an effective algorithm.

### **Unit IV**

Functions, uses, importance and meaning of financial statement analysis. Limitations of Financial statements – Preparation of common size statements – Ratio analysis – concept, uses and limitations. Different types of Ratios, computation of Ratios from Financial statements.

### **Unit V**

Objectives of Funds flow statement – concept of funds, working capital, current assets, current liabilities, working capital statement or schedule of changes in working capital, preparation of Funds Flow Statement, Objectives of cash flow statement – preparation of cash flow statement, cash from operations, external sources of cash, Applications of cash form of cash flow statement.

40% Theory and 60% Problems

#### **Text Books Recommended:**

1. Financial and Management Accounting – T.s. Reddy and Y. Hari Prasad  
Reddy, Margham Publications
2. Accounting for Management – NP Srinivasan M. Sakthivel Murugan  
S.Chand & Company

#### **Books for Reference:**

1. Management Accounting S.N. Maheswari, Sultan Chand & Sons
2. Management Accounting – Tools and Techniques – N. Vinayagam, IB  
Sinha
3. Financial Accounting – B. Charumathi and L. Vinayagam – S. Chand &  
Company

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## **SECOND ALLIED COURSE II MANAGEMENT INFORMATION SYSTEMS**

### **Unit I**

Definition of MIS – Systems approach – meaning and objectives of MIS – MIS and use of computer – limitations of MIS

### **Unit II**

Computer Software for information systems – introduction – system software – Application software – Software Trends.

### **Unit III**

Information system in Business – introduction – Functional areas of Business – marketing information system – Human Resource Information system

### **Unit IV**

Application of Information Technology in Business – Introduction of E-Commerce, Mobile Commerce, E- Governance, E- enterprises, From PC to the Web.

### **Unit V**

Information security, Ethics and Society – Challenges of Securing computer systems – Types of Security Breaches, Cyber Laws and IT Act 2000 – Ethical and social Dimensions of Information Technology

### **Text Books Recommended:**

1. Management, Information system A.K. Gupta – S. Chand and Company
2. Management Information system Dr. S.P. Rajagopalan – Margham Publications

### **Books for Reference:**

1. Management Information system P. Mohan – Himalaya Publishing House
2. Management Information System, Managerial perspectives – D.P. Goyal - Macmilan

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# **NON – MAJOR ELECTIVE I – WORKING PRINCIPLES OF INTERNET**

## **Unit I**

What is Internet ? The Internet's underlying Architecture

## **Unit II**

Connecting to the Internet – Communicating on the Internet

## **Unit III**

How the World Wide Web works. Common Internet tools

## **Unit IV**

Multimedia on the Internet – Intranet and shopping on the Internet

## **Unit V**

Safeguarding the Internet

## **Text Book:**

How the Internet works – Techmedia – Preston Gralla Millennium Edition, fourth Edition

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## **CORE COURSE – VII - HTML LAB**

1. Develop a HTML document, which displays your name as <h1> heading and displays any four of your friends. Each of your friend's names must appear as hot text. When you click your friend's name, it must open another HTML document, which tells about your friend.
2. Write names of several countries in a paragraph and store it as an HTML document, world.html. Each country name must be a hot text. When you click India (for example), it must open india.html and it should provide a brief introduction about India.
3. Design a HTML document describing you. Assign a suitable background design and background color and a text color.
4. Develop a Complete Web Page using Frames and Framesets which gives the Information about a Hospital using HTML.
5. Develop complete set of web pages to describe you skills in various areas using HTML.
6. Develop a web site to publish your family and the details of each member-using HTML.
7. Develop a HTML document to display a Registration Form for an intercollegiate function.
8. Develop a HTML document to design Alumni Registration form of your college.
9. Create a HTML table with rows and columns and split them using Rowspan and Colspan.
10. Create a web page in the format of front page of a news paper using Text links. Align the text with colors.

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## **CORE COURSE – VIII – WEB DESIGN**

### **Unit I**

Fundamentals : A Brief Introduction to the Internet – The World Wide Web – Web Browser – Web Servers – Uniform Resource Locators – Multiple Internet Mail Extensions - The Hypertext Transfer Protocol – The Web Programmers Tool Box.

### **Unit II**

Introduction to HTML : Designing a Home Page – HTML Document – Anchor Tag – Hyperlinks – Head and Body Sections – Header Section – Title – Prologue – Links – Colorful Pages – Comments – Body Section – Heading – Horizontal Ruler – Paragraph – Tabs – Images and Pictures – Lists and their Types – Nested Lists – Table Handling.

### **Unit III**

Frames : Frameset Definition – Frame Definition – Nested Framesets – Forms : Forms and their Elements.

### **Unit IV**

DHTML and Style Sheets – Defining Styles – Elements of Styles – Linking a Style Sheet to a HTML Document – Inline Styles – External Style Sheets – Internal Style Sheets – Multiple Styles – Web Page Designing.

### **Unit V**

Introduction to XML : Introduction – The Syntax of XML – XML Document Structure – Document Type Definitions – Namespaces – XML Schemas – Displaying Raw XML Documents – Displaying XML Documents with CSS – XML Processors.

### **Text Books:**

1. Programming the World Wide Web, Robert .W.Sebesta, Pearson Education, Third Edition, 2007. For Units I and Unit V.
2. World Wide Web Designing, C.Xavier, Tata McGraw Hill, 2000. For Units II,III and IV

### **Reference Book**

- 1.Web Design – A Beginners Guide, Wendy Willard, Tata McGraw Hill.

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## **SECOND ALLIED COURSE III – ORGANISATIONAL BEHAVIOUR**

### **Unit I**

Definition, Nature and scope of organizational Behaviour. Need for studying Organizational Behaviour, Organizational Behaviour models

### **Unit II**

Foundation of individual Behaviour, Human Behaviour and its Causation, theories of personality, perceptions

### **Unit III**

Concept of Attitude, Concept of value, concept of JOB Satisfaction learning theories

### **Unit IV**

Foundation of GROUP BEHAVIOUR – reasons for GROUP formation by people – GROUP COHESION – JOB FRUSTRATION – JOB STRESS

### **Unit V**

Leadership concept, Functions and styles, Power and Politics meaning, distinction between power and politics – Organisational politics

### **Text Books Recommended:**

1. Organisational Behaviour – S.S. Khanka – S. Chand & Co.
2. Organisational Behaviour – J. Jayasankar – Margham Publications

### **Book for Reference:**

1. Organisational Behaviour – L.M. Prasad Sultanchand & sons
2. Organisational Behaviour – Dr. P.C. Sekar

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**NON- MAJOR ELECTIVE II**  
**RECENT TRENDS IN ENTERPRISE INFORMATION TECHNOLOGY**

**Unit I**

**BUSINESS PROCESS RE-ENGINEERING** : Innovative or Perish – Waves of Innovation – What a Difference a Century Can Make? – Value Innovation & BPR – Change Management – “BPR” Philosophy – Models of “BPR”.

**Unit II**

**SUPPLY CHAIN MANAGEMENT** : Introduction to SCM – Evolution of Supply Chain Management – E-Business & Drivers of E-Business – Concept of Supply Chain Management – Understanding the SCM.

**Unit III**

**SUPPLY CHAIN MANAGEMENT** : SCM Frame Work – EDI, IOS, ECSS – E-Sourcing and Out-sourcing.

**ENTERPRISE RESOURCE PLANNING**: Introduction to ERP – Evolution of ERP – Materials Requirement Planning (MRP) – Manufacturing Resource Planning System (MRP II) and Money Resource Planning (MRP III).

**Unit IV**

**ENTERPRISE RESOURCE PLANNING**: ERP Packages – SAP – Relationship of ERP with other components of EIS – ERP implementation ERP Packages – SAP – Relationship of ERP with other components of EIS – ERP implementation – Personnel involved in ERP implementation.

**Unit V**

**CUSTOMER RELATIONSHIP MANAGEMENT** : Introduction to customer Relationship Management (CRM) – Evolution of CRM – Understanding CRM – Framework of CRM – Models of CRM – CRM Technology – Integration with other Enterprise Wide System – CRM in Practice.

**Books for Study :**

1. “ENTERPRISE WIDE INFORMATION SYSTEMS”, K. Balasubramaniyan, S.Usha Priya, K.Hema, IInd Edition – 2002.

**Reference Book:**

Using Information Technology – William, Sawyer, Hetisn, TMH – III Edition.

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## **CORE COURSE – IX – DATA STRUCTURES AND ALGORITHMS**

### **Unit I**

Arrays and sequential representations – ordered lists – Stacks and Queues – Evaluation of Expressions – Multiple Stacks and Queues – Singly Linked List – Linked Stacks and queues – Polynomial addition.

### **Unit II**

Trees – Binary tree representations – Tree Traversal – Threaded Binary Trees – Binary Tree Representation of Trees – Graphs and Representations – Traversals, Connected Components and Spanning Trees – Shortest Paths and Transitive closure – Activity Networks – Topological Sort and Critical Paths.

### **Unit III**

Algorithms – Pseudo code conventions - Sorting – Heap Sort – Merge Sort – Quick Sort – Binary Search – Finding the Maximum and Minimum.

### **Unit IV**

Greedy Method : The general method – optimal storage on tapes – Knapsack Problem – Job Sequencing with dead lines – Optimal Merge Patterns.

### **Unit V**

Back tracking: The general method – The 8-Queens Problem – Sum of Subsets – Graph Coloring.

### **Text Books:**

1. Fundamentals of Data Structure – Ellis Horowitz, Sartaj Sahni and Sanguthevar.
2. Fundamentals of Computer Algorithms – Ellis Horowitz, Sartaj Sahni and Sanguthevar Rajasekaran, Galgotia Publications, 2001.

### **Reference Book:**

1. Data Structures – LIPSCHUTA, Tata Mcgraw Hill, Schaum's Outline Series.

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# **CORE COURSE – X - SOFTWARE ENGINEERING**

## **Unit I**

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

## **Unit II**

Software Cost Estimation: Software cost Factors – Software Cost Estimation Techniques – Staffing-Level Estimation – Estimating Software Estimation Costs.

## **Unit III**

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

## **Unit IV**

Design Notations – Design Techniques. Implementation Issues: Structured Coding Techniques – Coding Style – Standards and Guidelines – Documentation Guidelines.

## **Unit V**

Verification and Validation Techniques: Quality Assurance – Walkthroughs and Inspections – Unit Testing and Debugging – System Testing. Software Maintenance: Enhancing Maintainability during Development – Managerial Aspects of Software Maintenance – Configuration Management.

### **Textbook:**

1. Software Engineering Concepts – Richard Fairley, 1997, Tata Mcgraw Hill.

### **Reference Books:**

1. Software Engineering for Internet Applications – Eve Anderson, Philip Greenspun, Andrew Grumet, 2006, PHI.
2. Fundamentals of Software Engineering – Rajib Mall, 2nd Edition, PHI
3. Software Engineering – Stephen Schach, 7th edition, TMH.

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## **CORE COURSE – XI – OPERATING SYSTEM**

### **Unit I**

Evolution of operating systems- Functions – Different views of OS – Batch processing, Multiprocessing, Time sharing OS – I / O programming concepts – Interrupt Structure & processing

### **Unit II**

Memory Management – Single Contiguous Allocation- Partitioned Allocation – Relocatable Partitions allocations – Paged and Demand paged Memory Management – Segmented Memory Management – Segmented and Demand paged Memory Management – overlay Techniques - Swapping

### **Unit III**

Processor Management – Job Scheduling – Process Scheduling – Functions and Policies – Evolution of Round Robin Multiprogramming Performance – Process Synchronisation – Wait and Signal mechanisms – Semaphores P & V Operations – Deadlock – Banker's Algorithm.

### **Unit IV**

Device Management – Techniques for Device Management – I/O Traffic Controller, I/O Scheduler, I/O Device Handlers – Spooling.

### **Unit V**

File Management: Simple File System, General Model of a File System, Physical and Logical File System. Case Studies: MSDOS, UNIX.

### **Text Book:**

Operating Systems – E. Madnick & John J. Donavan, Tata McGraw Hill Publishing Co., Limited.

### **Reference Book:**

System Programming and Operating Systems – D.M. Dhamdhare, Tata McGraw Hill Publishing Co., Limited.

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## CORE COURSE XII – OPERATING SYSTEM LAB

1. Write a menu driven shell program for the following:
  - i. List of files, ii. Processes of Users , iii. Today's Date, iv. Users of system, v. Quit.
- 2., Write a shell program which accepts the name of a file from the standard input and then performs the following tests on it.
  - i. File existence      iii File Writable.
  - ii. File readable      iv Both readable and writable.
3. Write a shell program to accept an input and check if the given input is a directory. If it is a directory, then display the contents and revoke the execute permission for group and others for all files starting with "a" in the directory.
4. Write a shell program using three arguments to take the pattern as well as input and output file names. If the pattern is found display "Pattern found", else display "Error message". Also check if right number of arguments are entered.
5. Write a menu driven shell program to copy, edit, rename, delete a file.
6. Write a menu driven shell program to perform the following tasks
  - i. Enter the sentences in file
  - ii. Search a given whole word in an existing file
  - iii. Quit.
7. Write a menu driven shell program for the following –
  - i.      Passwd, ii ipconfig iii. ping
8. Write the shell program which gets executed the moment the user logs in. It should display the message "Good Morning" / "Good Afternoon" / "Good Evening" depending upon the time at which the user logs in.
9. Write a shell program to find the number of ordinary files and directory files in the current directory.
10. Write a shell program to accept the name of the directory as command line argument and display the listing in that directory. By default, the "Home" directory's contents should be displayed.

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## CORE COURSE XIII – MySQL LAB

1. Consider the following relations:

Student (*snum*: integer, *sname*: string, *major*: string, *level*: string, *age*: integer)

Class (*name*: string, *meets at*: string, *room*: string, *d*: integer)

Enrolled (*snum*: integer, *cname*: string)

Faculty (*fid*: integer, *fname*: string, *deptid*: integer)

The meaning of these relations is straightforward; for example, Enrolled has one record per student-class pair such that the student is enrolled in the class. Level is a two character code with 4 different values (example: Junior: JR etc)

Write the following queries. No duplicates should be printed in any of the answers.

- i. Find the names of all Juniors (level = JR) who are enrolled in a class taught by Prof. Anand.
- ii. Find the names of all classes that either meet in room R18 or have five or more Students enrolled.
- iii. Find the names of all students who are enrolled in two classes that meet at the same time.
- iv. Find the names of faculty members who teach in every room in which some class is taught.
- v. Find the names of faculty members for whom the combined enrollment of the courses that they teach is less than five.

2. The following relations keep track of airline flight information:

Flights (*no*: integer, *from*: string, *to*: string, *distance*: integer, *Departs*: time, *arrives*: time, *price*: real)

Aircraft (*aid*: integer, *aname*: string, *cruisingrange*: integer)

Certified (*eid*: integer, *aid*: integer)

Employees (*eid*: integer, *ename*: string, *salary*: integer)

Note that the Employees relation describes pilots and other kinds of employees as well; Every pilot is certified for some aircraft, and only pilots are certified to fly.

Write each of the following queries.

- i. Find the names of aircraft such that all pilots certified to operate them have salaries more than Rs.80, 000.
- ii. For each pilot who is certified for more than three aircrafts, find the *eid* and the maximum *cruisingrange* of the aircraft for which she or he is certified.
- iii. Find the names of pilots whose *salary* is less than the price of the cheapest route from Chennai to California.
- iv. For all aircraft with *cruisingrange* over 1000 Kms, .find the name of the aircraft and the average salary of all pilots certified for this aircraft.
- v. Find the names of pilots certified for some Boeing aircraft.
- vi. Find the *aids* of all aircraft that can be used on routes from Chennai to New Delhi.

3. Consider the following database of student enrollment in courses & books adopted for each course.

STUDENT (*regno*: string, *name*: string, *major*: string, *bdate*:date)

COURSE (*course #*:int, *cname*:string, *dept*:string)

ENROLL ( *regno*:string, *course#*:int, *sem*:int, *marks*:int)

BOOK \_ ADOPTION (*course#* :int, *sem*:int, *book-ISBN*:int)

TEXT (*book-ISBN*:int, *book-title*:string, *publisher*:string, *author*:string)

- i. Create the above tables by properly specifying the primary keys and the foreign keys.
- ii. Enter at least five tuples for each relation.



- iii. Demonstrate how you add a new text book to the database and make this book be adopted by some department.
  - iv. Produce a list of text books (include Course #, Book-ISBN, Book-title) in the alphabetical order for courses offered by the 'CS' department that use more than two books.
    - v. List any department that has *all* its adopted books published by a specific publisher.
    - vi. Generate suitable reports.
    - vii. Create suitable front end for querying and displaying the results.
4. The following tables are maintained by a book dealer.
- AUTHOR (author-id:int, name:string, city:string, country:string)  
 PUBLISHER (publisher-id:int, name:string, city:string, country:string)  
 CATALOG (book-id:int, title:string, author-id:int, publisher-id:int, category-id:int, year:int, price:int)  
 CATEGORY (category-id:int, description:string)  
 ORDER-DETAILS (order-no:int, book-id:int, quantity:int)
- i. Create the above tables by properly specifying the primary keys and the foreign keys.
  - ii. Enter at least five tuples for each relation.
  - iii. Give the details of the authors who have 2 or more books in the catalog and the price of the books is greater than the average price of the books in the catalog and the year of publication is after 2000.
  - iv. Find the author of the book which has maximum sales.
  - v. Demonstrate how you increase the price of books published by a specific publisher by 10%.
  - vi. Generate suitable reports.
  - vii. Create suitable front end for querying and displaying the results.
5. Consider the following database for a banking enterprise
- BRANCH(branch-name:string, branch-city:string, assets:real)  
 ACCOUNT(accno:int, branch-name:string, balance:real)  
 DEPOSITOR(customer-name:string, accno:int)  
 CUSTOMER(customer-name:string, customer-street:string, customer-city:string)  
 LOAN(loan-number:int, branch-name:string, amount:real)  
 BORROWER(customer-name:string, loan-number:int)
- i. Create the above tables by properly specifying the primary keys and the foreign keys
  - ii. Enter at least five tuples for each relation
  - iii. Find all the customers who have at least two accounts at the *Main* branch.
  - iv. Find all the customers who have an account at *all* the branches located in a specific city.
    - v. Demonstrate how you delete all account tuples at every branch located in a specific city.
  - vi. Generate suitable reports.
  - vii. Create suitable front end for querying and displaying the results.

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# MAJOR BASED ELECTIVE – I – DATA BASE SYSTEMS

## Unit I

Introduction: Database-System Applications- Purpose of Database Systems - View of Data -- Database Languages - Relational Databases - Database Design -Object-Based and Semi structured Databases - Data Storage and Querying Transaction Management -Data Mining and Analysis - Database Architecture - Database Users and Administrators - History of Database Systems.

## Unit II

Relational Model: Structure of Relational Databases - Fundamental Relational-Algebra Operations Additional Relational-Algebra Operations- Extended Relational-Algebra Operations - Null Values - Modification of the Database.

## Unit III

SQL: Data Definition - Basic Structure of SQL Queries - Set Operations - Aggregate Functions - Null Values - Nested Subqueries - Complex Queries - Views -Modification of the Database - Joined Relations - SQL Data Types and Schemas - Integrity Constraints -Authorization - Embedded SQL

## Unit IV

Relational Languages: The Tuple Relational Calculus - The Domain Relational Calculus - Query-by- Example. Database Design and the E-R Model: Overview of the Design Process - The Entity-Relationship Model - 3 Constraints - Entity-Relationship Diagrams - Entity-Relationship Design Issues - Weak Entity Sets - Database Design for Banking Enterprise

## Unit V

Relational Database Design: Features of Good Relational Designs - Atomic Domains and First Normal Form - Decomposition Using Functional Dependencies - Functional-Dependency Theory - Decomposition Using Functional Dependencies - Decomposition Using Multivalued Dependencies-More Normal Forms - Database-Design Process

### Text Book:

1. Database System Concepts, Fifth edition, Abraham Silberschatz , Henry F. Korth, S. Sudarshan, McGraw-Hill-2005.

### Reference Books:

1.“An introduction to database systems”, Bipin C. Desai, Galgotia Publications Pvt Ltd, 1991.  
2.“An Introduction to Database Systems”, C.J.Date, Third Edition Addison Wesley 1983.

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## **MAJOR BASED ELECTIVE – I – PROGRAMMING IN ASP**

### **Unit I**

Introduction to ASP – Active Server Pages Model – ASP File – the process of serving an Active Server Page – Using Scripting Languages – Setting the Primary Scripting Language – Including other files – Understanding objects.

### **Unit II**

Understanding components – Working with users – working with HTML forms – retrieving form data – using text boxes and text areas.

### **Unit III**

Cookies – working with cookies – applications of cookies – addressing the drawbacks of using cookies – using cookies in ASP applications. Working with connections and data sources – creating connections with OLEdb and ODBC – connecting to Microsoft SQL server – connecting to a Microsoft access database.

### **Unit IV**

About the connection object – executing a SQL statement with the connection object – understanding session and connection pooling – working with record sets – retrieving a record set – record set cursor and locking types – understanding ADO cursors – paging through a record set.

### **Unit V**

Working with the command object – creating stored procedures – executing stored procedures with the connection object – executing stored procedures with the command object – retrieving parameter information.

### **Text Books :**

1. Practical ASP – Ivan Bayross, BPB Publications, 2000
2. Special Edition Using Active Server Pages – Scot Johnson, Prentice Hall of India Private Limited 2001.

### **Reference Book:**

1. Mastering Active Server Pages 3, Russell Jones, Sybex Publishers

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# **MAJOR BASED ELECTIVE - I – SYSTEM ANALYSIS AND DESIGN**

## **Unit I**

Business Problem & Computers : Overview of Business Organization – Information needs & systems – Some typical problems – System life cycle – System study – Feasibility Study

## **Unit II**

System Analysis – Initiation of Analysis – The Process of Analysis – System Design – Design factors – Design Constraints – Processing Techniques – The Process of design – Output Design – input Design – Process Design – File Data Base Design

## **Unit III**

Analysis & Design Tools – Data Flow Diagram – Data Dictionary – Entity Relationship Diagram – Decision Tree – Decision Table – Structured English – Structure Charts – Grid Charts – Layout Charts – Configuration Selection & Acquisition – Detailing the configuration – Storage requirements – Internal Memory – Processors – Terminals – Printers

## **Unit IV**

File Organization & Design : Functional Classification of Files – File Structure – File Organization – Inverted File – Security & Controls – Risk management – Physical Security – Access Control – Data Control – Other Security & control measures

## **Unit V**

Post – Design phases – Develop Software – Installation & Changes-over-System Operation & maintenance – Systems Applications – Financial Accounting – Inventory Accounting System – Equipment Maintenance – Bank Operations – Production Planning & control – Process Control – Robotics

### **Text Book:**

1.System Analysis & Business Applications – Rajesh Nalk & Swapna Kishore, Wheeler Publishing – 1<sup>st</sup> edition 1994

### **Rference Book:**

1.Introducing Systems Analysis & Design – Ellas M. Awad – Galgotia Publications (P) Ltd., (Second Edition)

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## **CORE COURSE - XIV – SOFTWARE PROJECT MANAGEMENT**

### **Unit I**

Introduction To Software Project Management – Stepwise: An Overview Of Project Planning.

### **Unit II**

Project evaluation – Selection of an appropriate project approach – Risk management.

### **Unit III**

Software effort estimation - Activity planning.

### **Unit IV**

Resource allocation – Monitoring and Control – Managing Contracts.

### **Unit V**

Managing people and Organizing teams – Software quality.

### **Text Book:**

1. Bob Hughes, and Mile Cotterell, “Software Project Management”, Third Edition, Tata McGraw Hill, 2004

### **Reference Book:**

1. Royce, “Software Project Management”, Pearson Education, 1999

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## **CORE COURSE - XV – SOFTWARE QUALITY ASSURANCE**

### **Unit I**

Software Quality in Business Context - Managing Software Quality in an Organization

### **Unit II**

Planning for Software Quality Assurance - Product Quality and Process Quality

### **Unit III**

Software Measurement and Metrics - Walkthroughs and Inspections

### **Unit IV**

Software Configuration Management - Software CMM and Other Process Improvement Models

### **Unit V**

Software Testing - Career in Quality

### **Text Book**

1. Software Quality Assurance : Principles and Practice, Nina S Godbole, Narosa Publications,

### **Reference Book**

1. Customer Oriented Software Assurance, Frank P Ginac, Prentice Hall Edition.

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## **CORE COURSE – XVI**

### **Dot Net**

#### **Unit I**

Introduction – Dot Net Objects.

#### **Unit II**

Dot Net Web Service – Windows Forms

#### **Unit III**

Data Access in Dot Net – Handling XML.

#### **Unit IV**

Events and Delegates – Threads.

#### **Unit V**

Dot Net Remoting – Dot Net Reflection.

#### **Text Book**

1. David S Platt, “Introducing Microsoft .Net”, Prentice Hall of India, New Delhi, 2003.

#### **Reference Book**

1. David Chappell, Understanding .Net, Addison-Wesley Professional; 2 Edition, 2006.

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## **CORE COURSE – XVII**

### **SOFTWARE PROJECT MANAGEMENT LAB**

1. Preparation of Project Management Plan.
2. Using any of the CASE tools, Practice requirement analysis and specification for different firms.
3. Case study of cost estimation models.
4. Practice object oriented design principles for implementation.
5. Practice function oriented design.
6. Practice creating software documentation for all the phases of software development life cycle with respect to any real time application.

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## **MAJOR BASED ELECTIVE – II – SOFTWARE TESTING**

### **Unit I**

Software Development Life Cycle models: Phases of Software project – Quality, Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. White-Box Testing: Static Testing – Structural Testing – Challenges in White-Box Testing.

### **Unit II**

Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - Integration Testing: Integration Testing as Type of Testing – Integration Testing as a Phase Testing – Scenario Testing – Defect Bash.

### **Unit III**

System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing – Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.

### **Unit IV**

Performance Testing: Factors governing Performance Testing – Methodology of Performance Testing – tools for Performance Testing – Process for Performance Testing – Challenges. Regression Testing: What is Regression Testing? – Types of Regression Testing – When to do Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.

### **Unit V**

Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting – Best Practices. Test Metrics and Measurements: Project Metrics – Progress Metrics – Productivity Metrics – Release Metrics.

### **Text Book**

1. Software Testing Principles and Practices – Srinivasan Desikan & Gopalswamy Ramesh, 2006, Pearson Education.

### **Reference Book**

1. Renu Rajani, Pradeep Oak – “ Software Testing - Effective Methods, Tools & Techniques “ – Tata McGraw Hill

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## **MAJOR BASED ELECTIVE – II – SOFTWARE QUALITY MEASUREMENT**

### **Unit I**

Software Quality Measurement: An Insight - Can We Ever Hope to Measure and Control Software Quality

### **Unit II**

Using the Cost of Quality Approach for Software - An Approach to the Evaluation of Software Quality

### **Unit III**

ISO-Based Models to Measure Software Product Quality - Confluence of Six Sigma, Simulation and Software Development

### **Unit IV**

A Measurement Framework for Evaluating Model-Based Test Generation Tools - Synergic Use of Software Quality Models

### **Unit V**

An Overview of Metrics-Based Approaches to Support Software Components Reusability Assessment - The Evaluation of Software Quality Factors in Very Large Information Systems

### **Text Book**

1. Software Quality Measurements : Concepts and Approaches, Ravi Kumar Jain, ICFAI Publishers

### **Reference Book**

1. Software Measurement and Estimation : A Practical Approach, Linda M Laird, M Carol, Brennan, IEEE Press.

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## **MAJOR BASED ELECTIVE – II – E-COMMERCE**

### ***Unit I***

E-commerce-Electronic Commerce – E-Commerce types – E-Commerce and world at the large-E-Commerce Case studies : Intel , Amazon.

### **Unit II**

Electronic Mail – The X.400 Message handling system –Internet Addresses – Multipurpose Internet Mail Extension – X.500 Directory Services – E-mail user agent.

### **Unit III**

EDI- Costs and benefits – Components of EDI Systems – EDI implementation issues – EDIFACT – EDIFACT Message Structure.

### **Unit IV**

Cyber Security – Cyber Attacks – Hacking- SSL - Authentication and assurance of data integrity – Cryptographic based solutions – Digital Signatures – VPN.

### ***Unit V***

Electronic Payment Systems – payment gateway – internet banking – the SET Protocol – E-cash – E-Cheque –Elements of electronic payments

### **Textbook**

1.“E-Commerce The Cutting Edge Of Business” 2-Edition by Kamalesh K Bajaj ,Debjani Nag –  
Tata Mc Graw Hill

### **Reference Book**

1) “Frontiers of E-commerce “ by Ravi Kalakota and Andrew B.Whinston –Pearson Education.

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## **MAJOR BASED ELECTIVE – III – COMPUTER NETWORKS**

### **Unit I**

Introduction: Uses Of Computer Networks - Network Hardware - Network Software - Reference Models - Example Networks.

### **Unit II**

The Physical Layer: Guided Transmission Media - Wireless Transmission - Communication Satellites - The Public Switched Telephone Network

### **Unit III**

The Data Link Layer: Data Link Layer Design Issues - Error Detection And Correction - Elementary Data Link Protocols - Sliding Window Protocols

### **Unit IV**

The Network Layer: Network Layer Design Issues - Routing Algorithms - Congestion Control Algorithms- Quality Of Service – Internetworking

### **Unit V**

The Transport Layer: The Transport Service (6.1.1,6.1.2,6.1.3)- The Application Layer: Dns-- Domain Name System - Electronic Mail - The World Wide Web (7.3.1)

### **Text Book:**

1.Computer Network , Fourth edition, Andrew S. Tanenbaum, Prentice Hall, 2006.

### **Reference Book:**

1. Data Communications & Computer Networks, Prakesh C. Gupta Prentice-Hall of India, 2006.

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# **MAJOR BASED ELECTIVE – III – LINUX ADMINISTRATION**

## **Unit I**

Linux Introduction and Installation: Linux-Advantages-Red Hat Linux-New Features-Installation procedures and Methods. Using Desktop-GNOME-KDE-Linux Commands Accessing and Running Applications

## **Unit II**

Installing Red Hat Linux Applications, Running Window Application, Running Window,DOS and Macintosh Applications –Tools for using Internet and Web.

## **Unit III**

Administration: Understanding System Administration: Root login-super user-GUI tools,commands and Log files-Configuring Hardware-File System and Disk Management-Monitoring performances.

## **Unit IV**

Setting Up and Supporting users: Creating user accounts – Setting user defaults –Creating Desktops-Modifying and Deleting Accounts.

## **Unit V**

Security Issues: Hacker versus Cracker-Password Protection- Protection from break-in-Filtering Network Access-Firewalls-Detecting Instructions – Encryption techniques

## **Text Book**

1. Christopher Negus “Red Hat Linux 9 Bible”, WILEY- Dreamtech India Pvt.Ltd,New Delhi, First Edition, 2003

## **Reference Book**

1. Thomas Schenk, “Red Hat Linux System Administration”, Techmedia, New Delhi,2003.

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## **MAJOR BASED ELECTIVE – III – OPEN SOURCE TECHNOLOGY**

### **Unit I**

Open Source Software:Definitions and History – Where Open Source is Successful – Open Source: The Good,the Bad and the Ugly.

### **Unit II**

Five Immediate Open Source Opportunities – Five More Open Source Opportunities.

### **Unit III**

Open Source Server Applications – Open Source Desktop Applications.

### **Unit IV**

How Open Source Software is Developed – Managing System Implementation.

### **Unit V**

Application Architecture – The Cost of Open Source Systems.

### **Text Book :**

1. “Open Source Software:Implementation and Management”, Paul Kavanagh, Elsevier Digital Press, 2004.

### **Reference Book**

1.Open Source 2.0:The Continuing Evolution, O’Reilly,DiBona, Cooper and Stone, 2005.

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## **MAJOR BASED ELECTIVE IV – MINI PROJECT**

Students to do Mini Project in their respective Colleges. The objective of the Mini Project is to enable the students to work in convenient groups of not more than Four members on a project with a Latest Software.

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## MAJOR BASED ELECTIVE IV – LINUX LAB

### Write Shell Programs for the following using the Linux Operating System

- 1 Check whether the given number is prime or not.
- 2 Find the biggest of given two numbers
- 3 Write a program to check the given number is odd or even
- 4 Write a program to generate Fibonacci Series
5. Write a program to prepare electric bill for domestic consumers.

For first 100 units - Rs.0.75/ unit

For next 100 units - Rs.1.50/unit

Above 200 units - Rs.3.00/unit.

Prepare the bill for the following format:

Customer No. -----

Customer Name -----

Pre.Reading -----

Cur.Reading -----

Units Consumed -----

Charge -----

Signature

6. Write a program to display the result PASS or FAIL using the information given below:  
Student Name, Student Reg.No., Mark1, Mark2, Mark3, Mark4 . The minimum pass for each subject is 50.

7 Write a program to prepare a Payroll with Basic Pay,DA,Allowances,PF and Gross Pay.

8 Using Case Statement, write a program to check the files ending with vowels.

9 Write a single program to sort the names and numbers in alphabetical, ascending and descending order.

10 Write a menu driven program to print Biodata for five persons.

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## **Major Based Elective IV – Dot Net LAB**

- 1.Design ASP.Net web form using Html Server Controls to enter job seeker's details.
- 2.Create an ASP.Net web form using Web control to enter E-Mail registration form.
- 3.Apply appropriate validation techniques in E-Mail registration form using validation controls.
4. Write an ASP.Net application to retrieve form data and display it the client browser in a table format.
- 5.Create a web application using ADO.Net that uses which performs basic data manipulations:  
(i). Insertion (ii) Updating (iii) Deletion (iv) Selection  
Hint: Do operations using Ms-Access and SQL-Server
6. Create an application using Data grid control to access information's from table in SQL server.
7. Create an application using Data list control to access information's from table in SQL server and display the result in neat format.
8. Case Studies (Must Include basic database operations such as Insertion, Deletion, Modication, Selection and Searching )
9. Job Search Portal.
- 10.College Portal.
11. Company Portal.

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