MSC

COURSE STRUCTURE FOR PG (MSc COMP-SCIENCE) COURSE-2016-17 CORE COURSE I –JAVA PROGRAMMING

Unit I

INTRODUCTION: Introduction to java – java and Internet – Byte codes – Features of Java– java development Environment – Java character set – operators – control statements – simple programs.

Unit II

OBJECT ORIENTATION IN JAVA: Classes – Methods – Inheritance – packages – interfaces – programming examples.

EXCEPTION HANDLING: Fundamentals – Exception types – Try catch block – throw, throw clause – finally – user defined Exceptions.

Unit III THREADS

Thread model – thread priorities – Runnable interface – creating a thread, multiple threads – Synchronization – interthread communication – suspending, Resuming and stopping threads.

Unit IV

INPUT/OUTPUT: String handling – Exploring java io. Package.

APPLETS: Applet basics – AWT classes – window fundamentals – working with frame windows – graphics – AWT controls – Swing – Layout Managers – Menus – Event Handling.

Unit V

JAVA NETWORKING: Basics – Socket overview – TCP/IP client sockets, TCP/IP server sockets – URL – Datagram sockets.

CONCEPTS OF ADVANCED JAVA PROGRAMMING: JAVA SCRIPTS – servlets – JDBC – EJB – JSP.

Text Book

1. Patrick aughton, Herbert Schildt, "JAVA2- The complete reference" Tata McGraw Hill Fifth Edition, New Delhi 2002

Reference Books

- 1. Deitel H M and Deiltel P J "JAVA How to Program " Pearson Education , New Delhi 2003
- 2. Hubbard John R, "Schaum's Outline of Theory and Problems of Programming with Java" Tata Mcgraw Hill, Second Edition, New Delhi 2004
- 3. Chitra A "Internet and Java Programming" ISTE 2002.

CORE COURSE II

WEB TECHNOLOGIES

Objectives :

To provide fundamental concept of Internet, JavaScript, XML, JSP, ASP with a view to developing professional software development skills.

UNIT I

Internet Basics: Basic Concepts – Internet Domains – IP Address – TCP/IP Protocol – The WWW – The Telnet — Introduction to HTML: Web server - Web client / browser - Tags – Text Formatting – Lists – Tables – Linking Documents - Frames.

UNIT II

JavaScript: JavaScript in Web Pages – The Advantages of JavaScript – Writing JavaScript into HTML – Syntax – Operators and Expressions – Constructs and conditional checking – Functions – Placing text in a browser

- Dialog Boxes - Form object's methods - Built in objects - user defined objects.

UNIT III

XML: Comparison with HTML – DTD – XML elements – Content creation – Attributes –Entities – XSL – XLINK – XPATH – XPOINTER – Namespaces – Applications – integrating XML with other applications.

UNIT IV

JSP Fundamentals: Basics – Directive basics – Page directive – The taglib directive – The include directive – JSP Standard Actions – Java Beans – Error Handling.

UNIT V

ASP: Introduction to ASP – Objects – Components – Working with HTML forms – Connecting to Microsoft SQL Server & MS–Access Database – SQL statements with connection object – Working with record sets.

Text Books

1. "Web Enabled Commercial Application Development Using HTML, DHTML, JavaScript, Perl CGI", Ivan Bayross, BPB Publication.

UNIT I & II

- 2. "XML Bible", Elliotte Rusty Harold, 2nd Edition, Wrox Publication. UNIT III
- 3. "Beginning Java Server Pages", Vivek Chopra, Sing Li, Rupert Jones, Jon Eaves, John T. Bell, Wrox Publications. **UNIT IV**
- 4. "Practical ASP", Ivan Bayross, BPB Publication. UNIT V

CORE COURSE III

DESIGN AND ANALYSIS OF ALGORITHMS

Objectives :

To study the concepts of algorithms and analysis of algorithms using divide and conquer, greedy method, dynamic programming, backtracking, and branch andbound techniques

UNIT I

Introduction: Algorithm Definition – Algorithm Specification – Performance Analysis. Elementary Data Structures: Stacks and Queues – Trees – Dictionaries – Priority Queues – Sets and Disjoint Set Union – Graphs

UNIT II

Divide and Conquer: The General Method – Defective Chessboard – Binary Search – Finding The Maximum And Minimum – Merge Sort – Quick Sort – Selection - Strassen's Matrix Multiplication.

UNIT III

The Greedy Method: General Method - Container Loading - Knapsack Problem - Tree Vertex Splitting – Job Sequencing With Deadlines -Minimum Cost Spanning Trees - Optimal Storage On Tapes – Optimal Merge Patterns - Single Source Shortest Paths.

UNIT IV

Dynamic Programming: The General Method – Multistage Graphs – All-Pairs Shortest Paths – Single-Source Shortest Paths - Optimal Binary Search Trees - String Editing - 0/1 Knapsack - Reliability Design - The Traveling Salesperson Problem - Flow Shop Scheduling. Basic Traversal and Search Techniques: Techniques for Binary Trees – Techniques for Graphs – Connected Components and Spanning Trees – Biconnected Components and DFS.

UNIT V

Backtracking: The General Method – The 8-Queens Problem – Sum of Subsets – Graph Coloring – Hamiltonian Cycles – Knapsack Problem Branch and Bound: The Method - 0/1 Knapsack Problem.

Text Book

Ellis Horowitz, Satraj Sahni and Sanguthevar Rajasekaran, Fundamentals of Computer Algorithms, Universities Press, Second Edition, Reprint 2009.

References

- 1. Data Structures Using C Langsam, Augenstien, Tenenbaum, PHI
- 2. Data structures and Algorithms, V.Aho, Hopcropft, Ullman, LPE
- 3. Introduction to design and Analysis of Algorithms S.E. Goodman, ST.Hedetniem- TMH

CORE COURSE IV

DISTRIBUTED OPERATING SYSTEMS

Objectives :

To study the concepts of distributed computing systems and cryptography.

Unit I

Fundamentals: What is Distributed Operating System – Evolution of Distributed Computing System – Distributed Computing System Models – Why are Distributed Computing Systems gaining popularity – What is a Distributed Computing System

Issues in Designing Distributed Computing System – Introduction to Distributed Computing Environment. Introduction to Computer Networks
Network types – LAN –WAN – Communication protocols – Internetworking – ATM Technology

Unit II

Message Passing: Introduction – Desirable features – Issues in PC Message Passing

- Synchronization - Buffering - Multidatagram Messages - Encoding and Decoding

- Process Addressing - Failure Handling - Group Communication

Unit III

Distributed Shard Memory: Introduction – General Architecture of DSM system – Design and Implementation Issues of DSM – Granularity – Structure of Shared Memory –Replacement Strategy – Thrasing – Heterogeneous DSM – Advantages Synchronization: Introduction – Clock Synchronization – Event Ordering – Mutual Exclusion – Deadlock – Election Algorithm

Unit IV

Distributed File System: Introduction – Desirable features – File Models – File Accessing Models – File Sharing Semantics – File Caching Schemes – File Replication – Fault Tolerance – Atomic Transactions – Design Principles

Unit V

Security: Introduction – Potential Attacks to Computer System – Cryptography – Authentication – Access Control – Digital Signatures – Design Principles

Text Book :

Distributed Operating Systems – Concepts and Design, Pradeep K Sinha, PHI, 2003.

References:

Distributed Operating Systems 1e, Andrew S Tanenbaum, PHI.

CORE PRACTICAL I JAVA PROGRAMMING LAB

1. Assume that a bank maintains 2 kinds of account

for its customers' one called savings account and the other current account' The savings account provides compound interest and withdraw facilities but no cheque book facility. The current account provides cheque book facility but no interest. Current account falls below this level a service charge is imposed. Create a class Account that stores customers name' account number and type of account. From thisderive the classescurr acct

and sav acct to make them more specific to their requirements. Introduce the necessary methods in order to achieve the following Tasks:

a. Accept deposit form a customer and update the ba

lance.

b. Display any deposit interest

c. Compute and deposit interest.

d. Permit withdrawal and update the balance.

e. Check for the minimum balance' impose penalty' if necessary and update the balance.

2.Use constructors and methods to initialize the class members. Write a program that accepts a shopping list of five items from the command line

and stores them in a vector and accomplish the following:

a. To delete an item in the list.

b. To add an item at a specified location in the li

st.

c. To add an item at the end of the list.

d. To print the contents of the vector.

3. Implementation of the concept of multiple inheritance using interfaces and design a package to cotain the class students and another package to contain the interfaces sports.

4. Develop a simple real life application program to illustrate the use of multithreads.

5. Create a try block that is likely to generate three types of exception and then incorporate necessary catch blocks to catch and handle them ppropriately.

6. Write a Java applet' which will create the layout below:

FORMAT

Enter your Name:

Enter your Age:

Select City: *Delhi *Madras

Select SIW: *Oracle *Visual Basic *Java

OK CANCEL

Handle the following simple validations. The name entered should be less than 25 characters wide. Age entered should be done as the user exits the fi

elds as well as when OK button is pressed. Hint use the Boolean action (Event evt' object arg).

7. Write an Applet which will play two sound notes in a sequence continuously use the play () methods available in the applet class and

the methods in the Audic clip Interface 16 3. OF Dec 114 1A12016 C.A.M. PHIL.M. RA. PR ASA & N ALCUMAR 14/8/16

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OOAD & UML

Objective :

To give a detailed knowledge on Structured approach to system construction, Various object oriented methodologies, Object oriented analysis, Object oriented design and UML examples.

Unit I

Structured approach to system construction : SSADM/SADT - An overview of object oriented systems development & Life cycle

Unit II

Various object oriented methodologies - Introduction to UML

Unit III

Object oriented analysis – Use cases- Object classification, relationships, attributes, methods

Unit IV

Object oriented design – Design axioms – Designing classes – Layering the software design :- data access layer, User interface layer, Control/business logic layer

Unit V

UML - Examples on :Behavioral models – Structural models – Architectural models from real world problems.

TEXT BOOK:

- 1. **Bahrami Ali**, Object oriented systems development, Irwin McGrawHill, 2005 (First 4 units covered here).
- 2. Booch Grady, Rumbaugh James, Jacobson Ivar, The Unified modeling language User Guide, Pearson education, 2006 (ISBN 81-7758-372-7) (Unit: -5 covered here).

CORE COURSE VI

DISTRIBUTED COMPUTING

Objective:

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This course aims to build concepts regarding the fundamental principles of distributed systems. The design issues and distributed operating system

Unit I

Introduction to Distributed System: Goals, Hardware concepts, Software concepts, and Client-Server model. Examples of distributed systems.

Communication: Layered protocols, Remote procedures call, Remote object communication. communication, Stream-oriented

Unit III

Processes: Threads, Clients, Servers, Code Migration, Software agent.

Naming: Naming entities, locating mobile entities, Removing un-referenced entities. Distributed File System: Sun network file system, CODA files Unit IV

Synchronization: Clock state, Election algorithms, Mutual exclusion, Distributed transactions. Consistency and Replication: Introduction, Data centric consistency models, Client centric consistency models, Distribution protocols,

Unit V

Fault Tolerance: Induction, Process resilience, Reliable client server Communication, Reliable group communication. Distributed commit, Recovery. Security: Introduction, Secure channels, Access control, Security management. Case Study: CORBA, Distributed COM, Globe, Comparison of

Text Books:

1. A. Taunenbaum, "Distributed Systems: Principles and Paradigms" 2. G. Coulouris, J. Dollimore, and T. Kindberg, "Distributed Systems: Concepts and Design", Pearson Education

References:

1. M. Singhal, N. Shivaratri, "Advanced Concepts in Operating Systems", Jua 71417 41216 3. Oddie /14/91-4 A-PRASARNAICUMBRA Dr. S. VIJAYBHANU ASJOCIATE PROFESSOR. CHINNALYAH, M.C.A.M. PHIL, M.B. ASSA. Prof Ot (15, Associate Professor, ANNAMPLAI UNIVERITY Dept of Computer Science, D. A.A. College -CD M T.B.M:L College, Porayar - 609 307 haven o

DISTRIBUTED TECHNOLOGIES LAB

Objectives :

To provide fundamental concept of Internet, JavaScript, XML, JSP, ASP with a view to developing professional software development skills

- 1. Create a table and insert a few records using Disconnected Access.
- 2. Develop a project to update and delete few records using DisconnectedAccess.
- 3. Develop a project to view the records using GridView, DetailsView, FormView Controls.
- 4. Develop a project to generate a crystal report from an existing database.
- 5. Design a web page that makes uses of Ad Rotator Control.
- 6. Design a web page involving Multi View or Wizard Control.
- 7. Make use of Image Control involving two hot spots in a web page.
- 8. Design a simple web site that makes use of Master Pages.
- 9. Establish the security features in a simple web site with five pages.
- 10. Use state management concepts in a mobile web application.
- 11. Develop a web service that has an ASP.NET client.
- 12. Develop a web service to fetch a data from a table and send it across to the client.

DATA MINING AND WARE HOUSING

Objective :

On successful completion of the course the students should have: Understood data mining techniques- Concepts and design of data warehousing.

UNIT I

Introduction – What is Data mining – Data Warehouses – Data Mining Functionalities – Basic Data mining tasks – Data Mining Issues – Social Implications of Data Mining– Applications and Trends in Data Mining.

UNIT II

Data Preprocessing : Why preprocess the Data ? –Data Cleaning - Data Integration and Transformation – Data Reduction – Data cube Aggregation – Attribute Subset Selection Classification: Introduction – statistical based algorithms – Bayesian Classification. Distance based algorithms – decision tree based algorithms – ID3.

UNIT III

Clustering: Introduction - Hierarchical algorithms – Partitional algorithms – Minimum spanning tree – K-Means Clustering - Nearest Neighbour algorithm. Association Rules: What is an association rule? – Methods to discover an association rule–APRIORI algorithm – Partitioning algorithm .

UNIT IV

Data Warehousing: An introduction – characteristics of a data warehouse – Data marts – other aspects of data mart .Online analytical processing: OLTP & OLAP systems.

UNIT V

Developing a data warehouse : Why and how to build a data warehouse – Data warehouse architectural strategies and organizational issues – Design consideration – Data content – meta data – distribution of data – tools for data warehousing – Performance considerations

TEXT BOOKS

- Jiawei Han and Miceline Kamber , "Data Mining Concepts and Techniques", Morgan Kaulmann Publishers, 2006. (Unit I – Chapter 1 -1.2, 1.4 , Chapter 11- 11.1) (Unit II – Chapter 2 - 2.1,2.3, 2.4, 2.5.1,2.5.2)
- Margaret H Dunham , "Data mining Introductory & Advanced Topics", Pearson Education , 2003.(Unit I – Chapter 1 -1.1 , 1.3, 1.5) , (UNIT II – Chapter 4 – 4.1,4.2, 4.3, 4.4) (UNIT III – Chapter 5 – 5.1,5.4, 5.5.1, 5.5.3,5.5.4, Chapter 6 – 6.1,6.3.
- 3. C.S.R.Prabhu, "Data Warehousing concepts, techniques, products & applications", PHI, Second Edition.) (UNIT IV & V)

REFERENCES:

- 1. Pieter Adriaans, Dolf Zantinge, "Data Mining" Pearson Education, 1998.
- 2. Arun K Pujari, "Data Mining Techniques", Universities Press(India) Pvt, 2003.
- 3. S.Rajashekharan, G A Vijaylakshmi Bhai,"Neural Networks,Fuzzy Logic,andGenetic Algorithms synthesis and Application", PHI
- 4. Margaret H.Dunham," Data Mining Introductory and Advanced topics",PearsonEductaionn 2003.

COMPILER DESIGN

OBJECTIVES :

On successful completion of the subject the students should have Understood the different phases of compiler and needs of the compiler.

UNIT I

Introduction to compilers – Analysis of source program – Phase of compiler – Cousins of compilers – Grouping of phases – Simple one pass compiler: overview – Syntax definition Lexical analysis: removal of white space and comments – Constants – Recognizing identifiers and keywords – Lexical analysis – Role of a lexical analyzer – Input buffering –Specification of tokens

- Recognition tokens.

UNIT II

Symbol tables: Symbol table entries – List data structures for symbol table –

- Hash tables – Representation of scope information – Syntax Analysis: Role of parser – Context free grammar – Writing a grammar – Top down parsing – Simple bottom up parsing – Shift reducing parsing.

UNIT III

Syntax directed definition: Construction of syntax trees – Bottom up evaluation of S-Attributed definition – L-Attributed definitions – Top down translation - Type checking: Type systems – Specifications of simple type checker.

UNIT IV

Run-time environment: Source language issues – Storage organizations – Storage allocation strategies - Intermediate code generation: Intermediate languages – Declarations – Assignment statements.

UNIT V

Code generation: Issue in design of code generator – The target machine – Runtime storage management – Basic clocks and flow graphs - Code optimization: Introduction – Principle source of code optimization – Optimization of basic blocks **Text Books:**

1. AHO, ULLMAN, "**COMPILERS, PRINCIPLES AND TECHNIQUES ANDTOOLS**", PEARSON EDUCATION – 2001 6TH EDITION.

WIRELESS SENSOR NETWORKS

Objective:

On Successful completion of the course the students should have understanding wireless sensor nodes, networks and tools.

UNIT I OVERVIEW OF WIRELESS SENSOR NETWORKS:

Challenges for Wireless Sensor Networks, Enabling Technologies ForWireless Sensor Networks.

UNIT II ARCHITECTURES :

Single-Node Architecture - Hardware Components, Energy Consumption of Sensor Nodes, Operating Systems and Execution Environments, Network Architecture - Sensor Network Scenarios, Optimization Goals and Figures of Merit, Gateway Concepts.

UNIT III NETWORKING SENSORS :

Physical Layer and Transceiver Design Considerations, MAC Protocols for Wireless Sensor Networks, Low Duty Cycle Protocols And Wakeup Concepts

- S-MAC, The Mediation Device Protocol, Wakeup Radio Concepts, Address and Name Management, Assignment of MAC Addresses, Routing Protocols- Energy-Efficient Routing, Geographic Routing.

UNIT IV INFRASTRUCTURE ESTABLISHMENT:

Topology Control, Clustering, Time synchronization, Localization and Positioning, Sensor Tasking and Control.

UNIT V SENSOR NETWORK PLATFORMS AND TOOLS:

Sensor Node Hardware – Berkeley Motes, Programming Challenges, Nodelevel software platforms, Node-level Simulators, State-centric programming.

TEXT BOOKS

- 1. Holger Karl & Andreas Willig, "Protocols And Architectures for WirelessSensor Networks", John Wiley, 2005.
- 2. Feng Zhao & Leonidas J. Guibas, "Wireless Sensor Networks- An Information Processing Approach", Elsevier, 2007.

REFERENCES

- 1. Kazem Sohraby, Daniel Minoli, & Taieb Znati, "Wireless Sensor Networks-Technology, Protocols, And Applications", John Wiley, 2007.
- 2. Anna Hac, "Wireless Sensor Network Designs", John Wiley, 2003.

OPEN SOURCE LAB

Objectives:

To provide fundamental concept of Internet, JavaScript, XML, JSP, ASP with a view to developing professional software development skills.

- 1. Write a server side PHP program that displays marks, total, grade of a student in tabular format by accepting user inputs for name, number and marks from a HTML form.
- 2. Write a PHP program that adds products that are selected from a web page to a shopping cart.
- 3. Write a PHP program to access the data stored in a mysql table.
- 4. Write a PHP program interface to create a database and to insert a table into it.

i). Write a PHP program using classes to create a table. ii). Write a PHP program to upload a file to the server.

- 5. Write a PHP program to create a directory, and to read contents from the directory.
- 6. Write a shell program to find the details of an user session.
- 7. Write a shell program to change the extension of a given file.
- 8. Create a mysql table and execute queries to read, add, remove and modify a record from that table.

Objective:

1.1 MOBILE COMMUNICATION

Objective :

On successful completion of this subject, the students should have understood Wireless networks WAP architecture

Unit I

Introduction: Applications-Mobile and Wireless Devices – Simplified Reference Model – Need for Mobile Computing – Wireless Transmission – Multiplexing – Spread Spectrum and cellular systems – Medium Access Control – Comparisons

Unit II

Telecommunications System: Telecommunication System– GSM – Architecture – Protocols – Hand over - Security – UMTS and IMT 2000 – UMTS System Architecture-UTRAN-Core Network-Handover- Satellite System

Unit III

Wireless LAN : IEEE S02.11 –System Architecture- Protocol Architecture-Medium Access Control Layer-MAC Frame-MAC Management— Roaming- Bluetooth:Architecture-Link Manager Protocol- Security -and Link Management.

Unit IV

Mobile IP: Goals – Packet Delivery – Strategies – Registration – Tunneling and Reverse Tunneling – Adhoc Networks – Routing Strategies

Unit V

WIRELESS APPLICATION PROTOCOL: Wireless ApplicationProtocol (WAP) –Architecture – XML – WML Script – Applications

Objective:

Text Books

1. J.Schiller, Mobile Communication, Addison Wesley, 2000.

References

- 1. William C.Y.Lee, Mobile Communication Design Fundamentals, JohnWiley, 1993.
- 2. William Stallings, Wireless Communication and Networks, Pearson Education, 2003.
- 3. Singhal, WAP-Wireless Application Protocol, Pearson Education, 2003.

Objective:

2.2 ARTIFICIAL INTELLIGENCE

On Successful completion of the course the students should have: understood the AI & Expert Systems.- Learnt the Heuristic techniques and reasoning

UNIT I

Introduction: AI Problems - Al techniques - Criteria for success. Problems, Problem Spaces, Search: State space search - Production Systems

UNIT II

Heuristic Search techniques: Generate and Test - Hill Climbing- Best-First -Means-end analysis. Knowledge representation issues: Representations and mappings -Approaches to Knowledge representations -Issues in Knowledge representations - Frame Problem.

UNIT III

Using Predicate logic: Representing simple facts in logic - Representing Instance and Is a relationships - Computable functions and predicates - Resolution.

UNIT IV

Representing knowledge using rules: Procedural Vs Declarative knowledge – Logic programming - Forward Vs Backward reasoning - Matching - Control knowledge.

Objective:

UNIT V

Game playing – The minimax search procedure – Expert System - Perception and Action

TEXT BOOKS

1. Elaine Rich and Kevin Knight," Artificial Intelligence", Tata McGraw HillPublishers company Pvt Ltd, Second Edition, 1991.

Unit1: Chapter 1(1.1,1.3.1.5), Chapter 2(2.1,2.2)

Unit2: Chapter 3(3.1,3.2,3.3,3.6), Chapter 4(4.1,4.2,4.3,4.4).

Unit3: Chapter 5(5.1,5.2,5.3,5.4).

Unit4: Chapter 6.

Unit5: Chapter 12(12.1,12.2), Chapter 20 and Chapter 21.

3.1 PARALLEL PROCESSING

Objective:

To study the Parallel computer Architecture, theories of parallel computing, interconnection networks and applications of cost effective computer systems.

UNIT I

Introduction to Parallel Processing – Evolution of Computer Systems – Parallelism in Uniprocessor Systems – Parallel Computer Structures – Architectural Classification Schemes– Parallel Processing Applications.

UNIT II

Memory and Input-Output Subsystems – #Hierarchical Memory Structure# – Virtual Memory System – Memory Allocation and Management – Cache Memories and Management

- Input-Output Subsystems.

UNIT III

Principles of Pipelining and Vector Processing – Pipelining : An Overlapped Parallelism – Instruction and Arithmetic Pipelines – Principles of Designing Pipelined Processors – Vector Processing Requirements.

UNIT IV

Vectorization and Optimization methods – Parallel Languages for Vector Processing – Design of Vectorizing Compiler – Optimization of Vector Functions – SIMD Array Processors – SIMD Interconnection Networks

UNIT V

Multiprocessors Architecture and Programming – Functional Structures – Interconnection Networks - Parallel Memory Organizations – Multiprocessor Operating Systems – Language Features to Exploit Parallelism – Multiprocessor Scheduling Strategies.

Text Book:

Kai Hwang and Faye A. Briggs, Computer Architecture and Parallel Processing, McGraw Hill International Edition, 1985. [Chapters : 1, 2, 3, 4.5.1 – 4.5.3, 5.1, 5.2, 5.4, 6.3, 7.1, 7.2.1,

7.2.2, 7.2.3, 7.3.1, 7.3.3, 7.4, 7.5.1, 8.3]

UNIT I Chapter 1 Section 1.1 - 1.5

UNIT II Chapter 2 Sections 2.1 - 2.5

UNIT III Chapter 3 Sections 3.1 - 3.4

UNIT IV Chapter 4 Sections 4.5, Chapter 5 Sections 5.1, 5.2, 5.4

UNIT V Chapter 7 7.1 – 7.4, 7.5-7.5.1, Chapter 8 Sections 8.3

Books for Reference:

- 1. Richard Kain, Advanced Computer Architecture, PHI, 1999.
- 2. V. Rajaraman and C. Siva Ram Murthy, Parallel Computers, Architecture and Programming, PHI, 2000.

ADVANCED COMPUTER ARCHITECTURE

Objectives:

To study the advanced computer Architecture, theories of parallel computing, network properties and applications of cost effective computer systems to meet the above requirements.

UNIT I

Parallel computer models :- The state of computing - Multiprocessors and multicomputers – Multivector and SIMD computers.

UNIT II

Program and Network properties:- Conditions of parallelism – Program partitioning and scheduling – program flow mechanisms – system interconnect architectures.

UNIT III

Processors and memory hierarchy :- Advanced processor Technology – Super scalar and vector processors – Linear Pipeline Processors – Nonlinear pipeline Processors.

UNIT IV

Multiprocessors and Multicomputers:- Multiprocessor System nterconnects

 Message Passing Mechanisms – SIMD Computer Organizations – The Connection Machine CM 5 – Fine-Grain Multicomputers.

UNIT V

Software for Parallel Programming:- Parallel Programming Models – Parallel Languages and Compilers – Dependence Analysis of Data Arrays.

Text Book

1. Kai Hwang, "Advanced Computer Architecture "McGraw-Hill International Edn., Singapore, 1993. Chapters 1.1-1.3, 2, 4.1, 4.2, 6.2, 7.1, 7.4, 8 4, 8.5, 10.1, 10.2, 10.3

Reference Books:

- 1. Kai Hwang and Faye A.Briggs, "Computer Architecture and ParallelProcessing", McGraw- Hill International Editions, Singapore, 1985.
- 2. Michael J.Quinn, "Parallel Computing, Theory and Practice", McGraw-HillInternational Edn., Singapore, 1994.

5.3 DIGITAL IMAGE PROCESSING

Objective:

To study the various concepts, methods and algorithms of digital image processing with image transformation, image enhancement, image restoration, image compression techniques

Unit I CONTINUOUS AND DISCRETE IMAGES AND SYSTEMS :

Light, Luminance, Brightness and Contrast, Eye, The Monochrome Vision Model, ImageProcessing Problems and Applications, Vision Camera, Digital ProcessingSystem, 2-D Sampling Theory, Aliasing, Image Quantization, Lloyd MaxQuantizer, Dither, Color Images, Linear Systems And Shift Invariance, FourierTransform, ZTransform, Matrix Theory Results, Block Matrices and KroneckerProducts.

Unit II IMAGE TRANSFORMS :

2-D orthogonal and Unitary transforms, 1-D and 2-DDFT, Cosine, Sine, Walsh, Hadamard, Haar, Slant, Karhunen-loeve, Singularvalue Decomposition transforms.

Unit III IMAGE ENHANCEMENT :

Point operations - contrast stretching, clipping andthresholding density slicing, Histogram equalization, modification and specification, spatial operations - spatial averaging, low pass, high pass, bandpass filtering, direction smoothing, medium filtering, generalized cepstrum andhomomorphic filtering, edge enhancement using 2-D IIR and FIR filters, colorimage enhancement.

Unit IV IMAGE RESTORATION :

Image observation models, sources of degradation, inverse and Wiener filtering, geometric mean filter, non linear filters, smoothingsplines and interpolation, constrained least squares restoration.

Unit V IMAGE DATA COMPRESSION AND IMAGE RECONSTRUCTIONFROM PROJECTIONS:

Image data rates, pixel coding, predictive techniques transformcoding and vector DPCM, Block truncation coding, wavelet transform coding ofimages, color image coding. Random transform, back projection operator, inverse random transform, back projection algorithm, fan beam and algebraicrestoration techniques.

Book for study :

- 1. Anil K. Jain, "Fundamentals of Digital Image Processing", PHI, 1995.
- 2. Sid Ahmed M.A., "Image Processing", McGraw Hill Inc, 1995.
- 3. Gonzalaz R. and Wintz P., "Digital Image Processing", Addison Wesley, 2nd Ed, 1987.

WEB TECHNOLOGIES LAB

Objectives :

To provide fundamental concept of Internet, JavaScript, XML, JSP, ASP with a view to Developing professional software development skills.

- 1. Write a XML program for job listing in HTML.
- 2. Write a JavaScript code block, which checks the contents entered in a form's text element. If the text entered is in the lower case, convert to upper case.
- 3. Write a JavaScript code block, which validates a username and password.

a) If either the name or password field is not entered display an error message.

b) The fields are entered do not match with default values display an error message.

c) If the fields entered match, display the welcome message.

- 4. Write a JavaScript code to display the current date and time in a browser.
- 5. Write a JSP Program for user authentication.
- 6. Write a JSP Program for a simple shopping cart.
- 7. Write a JSP Program to prepare a bio data and store it in database.
- 8. Write an ASP Program using Response and Request Object.
- 9. Write an ASP Program using AdRotator Component.
- 10. Write an ASP program using database connectivity for student's record.

CORE COURSE IX CLOUD COMPUTING

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Objective:

On Successful completion of the course the students should have: Understanding Benefit of cloud Computing.

Unit 1

Understanding cloud computing: An introduction to cloud computing- what it is & what it is not- History - The network is the computer: How cloud computing works. Companies in the cloud: cloud computing today. The pros and cons of cloud computing- benefits- how to develop cloud services.

Unit II

Cloud computing for the community- Cloud computing for the corporation- Using cloud services: collaborating on calendars, schedules, and Task management. Exploring online calendar applications- Exploring online schedule applications-Exploring online planning and task management.

Unit III

Collaborating on Event Management: Event Management applications - Exploring Event Management Applications - Collaborating on project Management: Exploring project Management Applications - Collaborating on databases: how it works-

Unit IV

Storing and sharing Files and other Online Content: Understanding Cloud Storage-Evaluating Online File-Storage and Sharing Services-Exploring Online Book marking Services. Sharing Digital Photographs: Exploring online photo-editing Applications - Exploring Photo- Sharing Communities. Controlling it all with Web-

Unit V

Collaborating via Web - Based Communication Tools: Evaluating Mail Services-Instant Messaging Services - Web Conferencing services. Collaborating via Social networks and Groupware: creating groups on social networks - Evaluating online

TEXT BOOK:

Michael Miller "CLOUD COMPUTING Web-Based Applications That Change The You Work and Collaborate Online", Pearson Education, Edition-2009.

Unit 1: Part I: 1,2,3. Unit 2: Part II: 5,6 & Part III:7. Unit 3: Part III:8,10,13. Unit 4: Part III: 15,16,17. Unit 5: Part III: 18,19.

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