

SEMESTER I
CC I - WEB TECHNOLOGIES

Internal Marks : 25

External Marks :75

Total Marks :100

Subject Code : PXA

Exam Hrs :3

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 tag lib 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

SEMESTER I

CC II - DESIGN AND ANALYSIS OF ALGORITHMS

Internal Marks : 25

External Marks :75

Total Marks :100

Subject Code : PXB

Exam Hrs :3

Objectives

To study the concepts of algorithms and analysis of algorithms using divide and conquer, greedy method, dynamic programming, backtracking, and branch and bound 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, Augenstein, Tenenbaum, PHI
2. Data structures and Algorithms, V.Aho, Hopcroft, Ullman , LPE
3. Introduction to design and Analysis of Algorithms - S.E. Goodman, ST. Hedetniem-TMH

SEMESTER I
CC III - ADVANCED MICROPROCESSORS AND
MICRO CONTROLLERS

Internal Marks : 25

External Marks :75

Subject Code : PXC

Total Marks :100

Exam Hrs :3

Objective

To understand the concepts of different types Microprocessors, Microcontrollers and Embedded System.

UNIT I

8086:Architecture- PIN Diagrams - Timing Diagrams - Register Organization of 8086 - Architecture - Instruction Set of 8086. MICROPROCESSOR WITH MEMORY MANAGEMENT AND PROTECTION: Features of 80286 - Internal Architecture - Register Organization - Internal Block Diagram - Interrupts - Real and Protected Virtual Addressing - Interfacing Memory and I/O Devices with 80286 - Addressing Modes - Math Coprocessor.

UNIT II

BEGINNING OF 32-BIT MICROPROCESSORS: Architecture of 80386 - Register Organization - Addressing Modes of 80386 - Data Types - Concepts of Addressing in Real and Protected Modes - Segmentation and Paging - Conversion of a Linear Address to a Physical Address - Features of 80486 - Architecture and Register Organization of 80486.

UNIT III

PROCESSORS OF NEW MILLENNIUM: Salient Features of Pentium 4 - Modules of Pentium 4 Architecture: Front End Module, Out of Order Execution Engine, Execution Module, Memory Subsystem Module - Superscalar Execution - Pipelining - Hyper Threading in Pentium - RISC Processors: Basic Features and Advantages only.

UNIT IV

MICROCONTROLLERS: Architecture of 8051 - Register set - Memory and I/O Addressing - Interrupts - Six Addressing Modes - Ports of 8051 and their Operation - Architecture of 16-bit Microcontroller 80196.

UNIT V

EMBEDDED SYSTEMS AND REAL TIME OPERATING SYSTEMS (RTOS): Introduction to Multitasking - Simple Embedded Multitasking Systems - RTOS - Tasks in RTOS - Scheduling of Tasks - Resource Protection by Semaphore Concept - Examples of Applications: Temperature Monitor (Tasks, 14 15 Programming, Hardware Requirements, Dealing with Numbers) - A Model Train Controller - Length Measurement for Rolling Paper.

Text Books

1. A.K.Ray&K.M.Bhurchandi, "Advanced Microprocessors and Peripherals", TMH, 2nd Ed., 2007. UnitS: I, II & III
2. Rajiv Kapadia, "8051 Microcontroller & Embedded Systems", Jaico Publishing House, 2006. UnitS: IV & V

Books for Reference

1. Tim Wilmshurst, "An Introduction to the Design of Small Scale Embedded Systems", Palgrave Publishers, 2004.
2. Muhammad Ali Mazidi et al., "The 8051 Microcontroller and Embedded Systems" Pearson Education, 2nd Ed., 2006.

SEMESTER I
CC IV - DISTRIBUTED OPERATING SYSTEMS

Internal Marks : 25

External Marks : 75

Subject Code : PXD

Total Marks : 100

Exam Hrs : 3

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 Shared Memory: Introduction – General Architecture of DSM system – Design and Implementation Issues of DSM – Granularity – Structure of Shared Memory – Replacement Strategy – Thrashing – 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.

SEMESTER - I

CC V - WEB TECHNOLOGIES LAB

Internal Marks : 40

External Marks : 60

Subject Code : PXEY

Total Marks : 100

Exam Hrs : 3

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.

SEMESTER - I

EC I - SOFTWARE PROJECT MANAGEMENT

Internal Marks : 25

External Marks : 75

Subject Code : PXE1

Total Marks : 100

Exam Hrs : 3

Objective:

To understand the fundamental principal of Software project management and will also have a good knowledge of responsibilities of project manager and how to handle these.

UNIT I

Introduction to Software Project Management: Introduction – Why is SPM important? – Project- Software projects Vs other types of project – Contract and technical project management – Activities – plan, methods and methodologies categorizing software projects- stakeholders- setting objectives- Business case – project success and failures- Management. Project Evaluation and Programme Management: Introduction – Business case – Project portfolio management – Evaluation of individual projects – cost benefit evaluation techniques – risk evaluation – Programme management – Managing the allocation of resources – Strategic programme management – Creating a programme and aids – benefits management.

UNIT II

Overview Of Project Planning: Introduction - Step wise Project Planning – steps. Selection Of An Appropriate Project Approach : Introduction – Build or buy Choosing methodologies and technologies – Software processes and models – choice of process models – structure Vs speed of delivery – waterfall model – spiral model – software prototyping – Rapid application development – Agile methods- Extreme programming.

UNIT III

Software Effort Estimation: Introduction- Where are estimates done? – Problems with over and under estimates – Basis for estimating and its techniques – Bottom up estimating – Top down approach and parametric models – Expert Judgment – Estimating by analogy - Function Point Analysis – FP mark II – COSMIC full FPCOCOMO II – Cost estimation and staffing patterns. Activity Planning: Introduction- objectives – When to plan? – Project schedules – Projects and Activities – Network Planning Models – Sequencing and Scheduling Activities – Formulating a Network Model – Adding the Time Dimension – Forward and Backward Pass – Critical Path- Activity Float – Shortening the Project Duration – Critical Activities – Activity on Arrow Networks.

UNIT IV

Risk Management: Introduction – Risk – Categories of risk – A framework for dealing with risk – Risk Identification – Risk assessment – Risk Planning – Risk Management – Evaluating risks to schedule – Applying the PERT Technique – MonteCarlo Simulation – Critical Chain Concepts. Resource allocation : Introduction – Nature of resources – Identifying Resource Requirements- Scheduling – Creating Critical Path – Counting the cost – being the specific – publishing the resource schedule - Cost Schedules – Scheduling sequence.

UNIT V

Monitoring and Control: Introduction – Creating the framework – collecting the data – Review – Software Configuration Management. Managing Contracts: Introduction- Types of contracts – Contract Management - Managing people in software environments.

Text Book:

"Software project management" - Bob Hughes, Mike Cotterell and Rajib Mall - Fifth Edition.

Unit I: Chapter 1, 2

Unit II: Chapter 3, 4

Unit III: Chapter 5, 6

Unit IV: Chapter 7, 8

Unit V: Chapter 9, 10, 11

Reference Book:

"Software Project Management" - Walker Royce - Pearson Education.

SEMESTER - II

CC VI - J2EE

Internal Marks : 25

External Marks : 75

Subject Code : PXF

Total Marks : 100

Exam Hrs : 3

Objective

To understand the fundamental concepts of the J2EE Technologies and communication of client and server in the programming paradigm, component and framework model.

UNIT I

J2EE Overview: J2EE and J2SE- The Birth of J2EE - J2EE.J2EE Multi Tier Architecture: The Tier - J2EE Multi-Tier Architecture - Client Tier Implementation- Classification of Clients -Web Tier Implementation. J2EE Best practices: The Enterprise Application-Session Management- Presentation and Processing- Model View Controller.

UNIT II

Java Remote Method Invocation: RMI Concept-Remote Interface- Passing Objects - The RMI Process - Sever side - Client side. Java Interface Definition Language and Corba: Java IDL and CORBA- The IDL Interface - The Client side - The Server side - Running the code. JMS: JMS Fundamentals-Flexibility-Components of a JMS Program- Messages - Sending Messages to a Queue- Receiving Messages from a Queue.

UNIT III

JSP: JSP - JSP Tags- Variables and Objects- Methods -Control Statements- Loops - Tomcat-Request String -User Session - Cookies - Session Objects.

JAVA Naming and directory Interface API: Naming and Directories - JNDI- Retrieving Attributes from an Object using Directory Services - Naming Operations -

Add Binding to a Directory Service - Remove Binding to a Directory Service - Replace Binding to a Directory Service - Renaming a Name in the Directory Service. JAVA MAIL API: Java Mail- Java Mail API and Java Activation Framework -Send Email Messages- Receiving Email Messages - Deleting Email Messages.

UNIT IV

EJB: Enterprise Java Beans- The EJB container- EJB Classes- EJB Interfaces- Referencing EJB- Relationship Elements -Session Java Bean –Stateless Vs Stateful - Creating a Session Java Bean-Entity Java Bean -CMP - BMP - Message Driven Bean - Creating an MDB -The JAR file

UNIT V

STRUTS: Introduction to Struts - Building a Simple Struts Application – The Model Layer - View Layer - Controller Layer - Struts Modules

Text Books

1. Jim Keogh," The Complete Reference J2EE ",Tata McGraw Hill, New Delhi, 2006. UnitS: I, II, III & IV

2. James Holmes," The Complete Reference Struts", Tata McGraw Hill, New Delhi, 2004. Unit: V

Books for Reference

1. McGovern," J2EE 1.4 Bible", Wiley, Chennai, India, 2007.

2. Steven Holzner," Struts Essential Skills", Tata McGraw Hill, 2008.

SEMESTER - II

CC VII - DISTRIBUTED COMPUTING

Internal Marks : 25

External Marks : 75

Subject Code : PXG

Total Marks : 100

Exam Hrs : 3

Objectives

1. To develop skills and knowledge in Distributed objects.
2. Understand the concept of Distributed computing, distributed file system, Name Services and Distributed transactions.

UNIT I

Characterization of Distributed Systems-Examples-Resource Sharing and the Web- System Models- Architectural and Fundamental Models- Networking and Internetworking- Types of Networks- Network Principles- Internet Protocols-Case Studies.

UNIT II

Inter process Communication- The API for the Internet Protocols – External Data Representation and marshalling –Client-Server Communication- Group Communication- Distributed Objects and Remote Invocation-communication Between Distributed Objects – Remote Procedural Call- Events and Notifications.

UNIT III

Protection-Process and Threads-Communication and Invocation-OS Architecture-Security-Overview-Cryptographic Algorithms- Digital Signatures-Cryptography Pragmatics- Case Studies-Distributed File Systems-File Service Architecture.

UNIT IV

Name Services- Domain Name System- Directory and Discovery Services- Global Name Service- Clocks, Events and Process States- Synchronizing Physical Clocks- Logical Time and Logical Clocks- Global States.

UNIT V

Transactions- Nested Transactions-Locks-Optimistic Concurrency Control – Timestamp Ordering-Comparison-Flat and Nested Distributed Transactions – Atomic Commit Protocols-Concurrency Control in Distributed transactions – Distributed Deadlocks – Transaction.

Text Book

Coulouris George, Dollimore Jean and Kindberg Tim, “ Distributed Systems Concepts and Design”, 4th Edition, 2012, Pearson Education, Delhi.

Reference Books

1. Attiya Hagit, Welch Jennifer, “Distributed Computing”, 2004, Willey India Edition, Delhi.
2. M.L. Liu, “Distributed Computing Principles and Applications”, 2004, Pearson Education, Delhi.
3. Tanenbaum S. Andrew, Van Steen Maarten, “Distributed Systems-Principles and Pardigms”, 2007, Pearson Education, Delhi.

Web Resources

<http://distributed.computing.info/>

<http://fieldtrip.fcdonders.nl/tutorial/distributedcomputing>

SEMESTER – II

CC VIII - ARTIFICIAL INTELLIGENCE

Internal Marks : 25

External Marks : 75

Subject Code : PXH

Total Marks : 100

Exam Hrs : 3

Objective:

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 - AI 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.

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 Hill Publishers 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.

SEMESTER – II

CC IX - J2EE LAB

Internal Marks : 40

External Marks : 60

Subject Code : PXIY

Total Marks : 100

Exam Hrs : 3

Objectives

To provide fundamental concept of RMI, Servlet, JSP and EJB with a view to developing professional software development skills

J2EE

1. Remote Method Invocation

Servlet

2. Cookies
3. JDBC

JSP

4. Get and Post method
5. Cookies
6. JDBC
7. Bean Class

EJB

8. Session Bean
9. Entity Bean
10. XML Parsing using DOM

SEMESTER - II

CC X - DISTRIBUTED COMPUTING LAB

Internal Marks : 40

External Marks : 60

Subject Code : PXJY

Total Marks : 100

Exam Hrs : 3

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 Disconnected Access.
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.

SEMESTER – II

EC II - SOFT COMPUTING

Internal Marks : 25

External Marks : 75

Subject Code : PXE2

Total Marks : 100

Exam Hrs : 3

Objective:

To impart knowledge in Fuzzy Set Theory, Optimization, Neural Networks, Neuro Fuzzy Modeling and Application of Computational Intelligence.

Unit I

FUZZY SET THEORY : Introduction to Neuro – Fuzzy and Soft Computing – Fuzzy Sets – Basic Definition and Terminology – Set – Theoretic Operations – Member Function Formulation and Parameterization – Fuzzy Rules and Fuzzy Reasoning – Extension Principle and Fuzzy Relations – Fuzzy If Then Rules – Fuzzy Reasoning – Fuzzy Inference Systems – Mamdani Fuzzy Models – Sugeno Fuzzy Models – Tsukamoto Fuzzy Models – Input Space Partitioning and Fuzzy Modeling.

Unit II

Optimization: Derivative based Optimization – Descent Methods – The Method of Steepest Descent – Classical Newton’s Method – Step Size Determination – Derivative Free Optimization – Genetic Algorithms – Simulated Annealing – Random Search – Downhill Simplex Search.

Unit III

Neural Networks: Supervised Learning Neural Networks – Perceptrons – Adaline Back propagation Multilayer perceptrons – Radial Basis Function Networks – Unsupervised Learning and Other Neural Networks – Competitive Learning Networks – Kohonen Self –Organizing Networks – Learning Vector Quantization – Hebbian Learning.

Unit IV

Neuro Fuzzy Modeling: Adaptive Neuro – Fuzzy Inference Systems – Architecture – Hybrid Learning Algorithm – Learning Methods that Cross fertilize ANFIS and RBFN – Coactive Neuro Fuzzy Modeling – Framework – Neuron Functions for Adaptive Networks – Neuro Fuzzy Spectrum.

Unit V

Application Of Computational Intelligence: Printed Character Recognition – Inverse Kinematics Problems – Automobile Fuel Efficiency Prediction – Soft Computing for Color Recipe Prediction.

TEXT BOOK

1. J.S.R. Jang, C.T. Sun and E. Mizutani, “Neuro Fuzzy and Soft Computing”, PHI, Pearson Education, 2004.

REFERENCE BOOK

1. Timothy J. Ross, “Fuzzy Logic with Engineering Application, “McGraw Hill, 1977.

2. Davis E. Goldberg, “Genetic Algorithms Search, Optimization and Machine Learning”, Addison Wesley, 1989.

3. S. Rajasekaran and G.A.V. Pai, “Neural Networks, Fuzzy Logic and Genetic Algorithms”, PHI, 2003. Emereo Pty Limited, July 2008.

4. Ahmar, Abbas, “Grid Computing - A Practical Guide to technology and Applications”, Charles River media, 2003.

SEMESTER - II

EC III - COMPILER DESIGN

Internal Marks : 25

External Marks : 75

Total Marks : 100

Subject Code : PXE3

Exam Hrs : 3

Objective

To introduce various phases of a compiler and also to develop skills in designing a compiler.

UNIT I

Introduction: Different Phases of Compiler - Finite State Automation and Lexical analysis - A Simple Approach to the Design of Lexical Analyzers - Regular Expressions - A Language for Specifying Lexical Analyzers.

UNIT II

Syntax Specification: Context Free Grammars - Parsers – Derivation and Parse trees - Shift Reduce Parsing - Operator Precedence Parsing - Top- Down Parsing - Predictive Parsers.

UNIT III

Code Generation: Intermediate Code Generation - Translation - Implementation of Syntax - Directed Translators - Intermediate Code – Postfix Notation - Parse Trees and Syntax Trees - Three Address Codes, Quadruples

and Triples.

UNIT IV

Symbol Tables: Contents of a Symbol Table - Data Structures for Symbol Tables - Implementation of a Simple Stack Allocation Scheme - Implementation of Block

Structured Languages - Storage Allocation in Block Structured Languages - Errors - Lexical Phase Error.

UNIT V

Code Optimization And Code Generation: Elementary Code Optimization technique - Loop Optimization - DAG Representation of Basic Blocks - Value Numbers and Algebraic Laws - Object Programs - Problems in Code Generation - A Machine Model - A Simple Code Generator.

Text Book

Alfred V. Aho, Jeffery D.Ullman, "Principles of Compiler Design", Narosa, New Delhi, 2002. Ch:1.1-1.11,3.1-3.7,4.1,4.2,5.1-5.5,7.1-7.6,9.1,9.2,10.1, 10.2,11.1,11.2,12.1-2.4,15.1-15.4

Books for Reference

1. Dick Grune, Henri E. Bal, CerialJ.H.Jacobs, Koen G. Langondeon, "Modern Compiler Design", Wiley, Singapore, 2003.

2. Louden K., "Compiler Construction, Principles and Practice", Thomson, New Delhi, 2003.

SEMESTER - III

CC XI - WIRELESS SENSOR NETWORKS

Internal Marks : 25

External Marks : 75

Subject Code : PXX

Total Marks : 100

Exam Hrs : 3

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 for Wireless 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, Node level software platforms, Node-level Simulators, State-centric programming.

TEXT BOOKS

1. Holger Karl & Andreas Willig, "Protocols And Architectures for Wireless Sensor 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.

SEMESTER - III

CC XII - OBJECT ORIENTED SYSTEM DESIGN

Internal Marks : 25

External Marks : 75

Subject Code : PXL

Total Marks : 100

Exam Hrs : 3

Objective

To introduce various phases of a Object Oriented System Design and also to develop skills in designing a UML diagram.

UNIT I

Overview of Object-oriented systems development Need for object orientation - Overview of the unified approach -Object Basics -Object-Oriented Systems Development Life Cycle The software development process- building high-quality software- object-oriented systems development- reusability.

UNIT II

Object-Oriented Methodologies Unified Modeling Language Static and dynamic models- why modeling- introduction to the unified modeling language- UML diagrams- UML class diagram- Use-case diagram- UML dynamic modeling- model management- UML extensibility- UML meta-model.

UNIT III

Object-Oriented Analysis Process- identifying Use Cases Use-case driven object-oriented analysis- business process modeling- Use-case model- Object Analysis- Classification classifications theory- approaches for identifying classes-Identifying object relationships - identifying attributes and methods- defining attributes by analyzing use cases and other UML diagrams.

UNIT IV

The Object-Oriented Design Process and Design Axioms the object-oriented design process- object-oriented design axioms- corollaries- Design patterns and frameworks Describing Design patterns Façade Design pattern. Designing Classes - the object-oriented design philosophy- UML object constraint language- designing classes- the process- class visibility- designing classes- refining attributes - designing methods and procedures.

UNIT V

Access Layer - designing access layer classes- case study -View Layer- Designing interface objects user interface design as a creative process- designing view layer classes User satisfaction and usability testing Case Study - Analyzing the Bank ATM - Use-case model- developing effective documentation- Relationship analysis - defining attributes - object responsibility - defining methods for - refining attributes - designing methods - Designing the access layer - designing user interface

TEXT BOOKS

1. Ali Bahrami, Object Oriented System Development, McGraw Hill International Edition, 1999.

2. Erich Gamma, Richard Helm, Ralph Johnson and John Vlissides, DESIGN PATTERNS Elements of reusable Object Oriented Software , Addison Wesley Professional Computing Series - Pearson Education -2003

SEMESTER - III

CC XIII- DATA MINING LAB

Internal Marks : 40

External Marks : 60

Total Marks : 100

Subject Code : PXYM

Exam Hrs : 3

Objective

To get hands on experience in developing applications using data mining tool.

Exercise 1

Preprocessing

- a. Datatype Conversion
- b. Data Transformation

Exercise 2

Filters- Practical

- a. Replace Missing Values
- b. Add Expression

Exercise 3

Feature Selection

Select Attributes- Practical

- a. Filter
- b. Wrapper
- c. Dimensionality Reduction

Exercise 4

Supervised Technique

Classifier - Function - Practical

a. Multilayer Perceptron Tree - Practical

Exercise 5

Classifier- Bayes –Practical

a.Naive Bayes Rule- Practical

b.ZeroR

Exercise 6

Unsupervised Techniques

Clustering- Theory

Partitioned – Algorithm – Practical

Hierarchical Algorithm – Practical

Semi Supervised Algorithm – Practical

Exercise 7

Association Rule Mining

A-Priori –Algorithm –Practical

Predictive A-Priori –Practical

Exercise 8

Experimenter

Dataset – Test – Practical

Algorithm based –Test –Practical

Exercise 9

Knowledge Flow

Feature Selection – Practical

Clustering –Practical

Exercise 10

Knowledge Flow

Classification – Practical

SEMESTER - III

CC XIV - LAMP LAB

Internal Marks : 40

External Marks : 60

Subject Code : PXNY

Total Marks : 100

Exam Hrs : 3

Objective:

One of the most common web technology stack in the recent past and even now, is **LAMP** –Linux/Apache/MySQL/PHP.

1. Write a program to display the result PASS or FAIL using the information given below:
2. Student Name, Student Reg. No., Mark1, Mark2, Mark3, Mark4. The minimum pass for each subject is 50.
3. Write a program to prepare a Payroll with Basic Pay, DA, Allowances ,PF and Gross Pay.
4. Using Case Statement, write a program to check the files ending with vowels.
5. Write a single program to sort the names and numbers in alphabetical, ascending and descending order.
6. Write a menu driven program to print Bio-data for five persons.
7. Design a web page in PHP that should compute one's age on a given date.
8. Write a PHP program to download a file from the server.
9. Write a PHP program to store the current date and time in a COOKIE and display the 'Last Visited' date and time on the web page.
10. Write a PHP program to store page views count in SESSION, to increment the count on each refresh and to show the count on web page.
11. Write a PHP program to design a simple calculator.
12. Design an authentication web page in PHP with MySQL to check username and password.

SEMESTER - III

EC IV - DATA MINING AND DATA WAREHOUSING

Internal Marks : 25

External Marks : 75

Subject Code : PXE4

Total Marks : 100

Exam Hrs : 3

Objective

To provide an understanding of Data warehouses and Data Mining concepts.

UNIT I

Introduction: Data Mining What, Why - Data Mining Process - Applications - Techniques - Case Studies - Future of Data Mining – Guidelines for successful Data Mining - Data Mining Software. DATA WAREHOUSING: Introduction - Operational Data Stores - ETL - Data Warehouses, Design, Guidelines for Data Warehouse Implementation - Data Warehouse Metadata - Case Studies - OLAP:Introduction - Characteristics of OLAP Systems - Motivations for Using OLAP - Multidimensional View and Data Cube – Data Cube Operations.

UNIT II

Association Rule Mining: Introduction - Basics - Task and a Naive Algorithm - The Apriori Algorithm - Improving the efficiency of the Apriori Algorithm - Apriori - TID - Direct Hashing and Pruning - Dynamic Itemset Counting - Mining Frequent Patterns without Candidate Generation - Performance Evaluation of Algorithms - Software for Association Rule Mining.

UNIT III

Classification: Introduction - Decision Tree - The Tree Induction Algorithm - Split Algorithm on Information Theory, Gini Index - Over fitting and Pruning - Decision Tree Rules - Naive Bayes Method – Estimating Predictive and Improving Accuracy of Classification Methods – Other Evaluation Criteria for Classification Methods - Classification Software.

UNIT IV

Cluster Analysis: Cluster Analysis, What - Desired Features of Cluster Analysis - Types of Data - Computing Distance- Types of Cluster Analysis Methods - Partitioned, Hierarchical, Density-based methods - Dealing with Large Databases, Methods - Quality and Validity of Cluster Analysis – Cluster Analysis Software.

UNIT V

Web Data Mining: Introduction - Web Terminology and Characteristics - Locality and Hierarchy in the Web - Web Content Mining - Web Usage Mining - Web Structure Mining - Web Mining Software. INFORMATION PRIVACY AND DATA MINING: Introduction - Information Privacy What - Basic Principles to Protect Information Privacy - Uses and Misuses of Data Mining - Prime Aims of Data Mining, Pitfalls - Current Principles are Ineffective.

Text Books

1. G.K. GUPTA, Introduction to Data Mining with Case Studies” PHI Learning Pvt. Ltd., 2006.

Books for Reference

1. Jiawei Han and MichelineKamber, “Data Mining Concepts and Techniques”, 2nd Ed., Morgan Kaufmann Publishers, 2006. New Delhi.

2. Margret H. Dunham, “Data Mining: Introductory and Advanced Topics”, Pearson Education, 2003, New Delhi.

SEMESTER - III

EC V - CLOUD COMPUTING

Internal Marks : 25

External Marks : 75

Total Marks : 100

Subject Code : PXE5

Exam Hrs : 3

Objectives

1. To gain knowledge in cloud computing technology.
2. To acquire the knowledge in various services and applications over the cloud.

UNIT I

Cloud Computing Basics: Cloud Computing Overview-Applications- Intranets and the cloud-why Cloud Computing Matters- Benefits-Limitations-Companies in the cloud Today-Cloud Services.

UNIT II

Cloud Computing Technology: Hardware and Infrastructure – Clients-Security-Network- Services- Accessing the cloud- Platforms-Web applications- Web APIs-Web Browsers-Cloud Storage-Overview-Cloud Storage Providers-Standards-Application-client-Infrastructure-Service.

UNIT III

Cloud Computing at Work: Software as a service- Overview-Driving Forces- Company offerings-Industries-software plus services-Overview-Mobile Device Integration- Providers-Microsoft Online.

UNIT IV

Developing Applications: Google-Microsoft-Intuit Quick Base-Cast Iron Cloud – Bungee connect-Local clouds and Thin clients- Virtualization-Server Solutions-thin clients.

UNIT V

Migrating to the cloud: Cloud Services for Individuals-Cloud Services aimed at the mid- market-Enterprise- Class Cloud Offerings-Migration.

TEXT BOOK

Velte T.Antony, Velte J.Toby, elsenpeter Robert,"Cloud Computing:A Practical Approach", 2010, tata McGraw-Hill.

REFERENCE BOOKS

1. Miller Michael, "Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online", 2008, Que Publishing.
2. Beard Haley, "Cloud computing Best Practices for Managing and Measuring Processes for On-demand Computing, Applications and Data Centers in the Cloud with SLAs" , 2008, Emero Pvt. Limited.