SEMESTER –I			
Core II - ADVANCED JAVA PROGRAMMING			
Code:17PCSC12	**Hrs/week:5**	**Hrs/Semester:75**	**Credits:5**

Objective:

To understand the advanced concept of internet programming and also developing web based application using java programming

UNIT I

JDBC Overview - Connection Class - MetaData Function - SQLException–SQLwarning - Statement - ResultSet - Other JDBC Classes.

UNIT II

InetAddress - TCP/ IP client sockets - TCP/ IP server sockets - URL –URLConnection - Datagrams - Client/ Server application using RMI.

UNIT III

Bean Development Kit - Jar Files - Introspection - Design Pattern forproperties, events and methods - Constrained Properties - Persistence –Customizers

UNIT IV

Life Cycle of Servlet - Generic Servlet - HTTP Servlet - Reading InitializationParameters - Reading Servlet Parameters - Cookies - Session Tracking

UNIT V

JApplet - Button - Combo - Trees - Tables - Panes - AWT Classes –workingwith Graphics, Color and Font

Text Books:

1. Patrick Naughton& Herbert Schildt, "The Complete Reference: Java 2", TataMcGraw Hill, 1999. (Chapter - 18, 21, 24, 25, 26, 27)
2. Joseph Weber, "Using Java 2 Platform", Prentice Hall of India, 2000.
(Chapter - 39, 40)

Books for Reference:

- Deitel&Deitel, "Java How to Program", Prentice Hall, 5th Edition ,2002
- Peter Haggar, "Practical Java: Programming Language Guide", Addison-
- Wesley Pub Co, 1st Edition, 2000
- Bruce Eckel, "Thinking in Java", Pearson Education Asia, 2nd Edition, 2000

SEMESTER –I			
Core III - DESIGN AND ANALYSIS OF ALGORITHMS			
Code:17PCSC13	**Hrs/week:5**	**Hrs/Semester:75**	**Credits:5**

Objective:

- To introduce the classic algorithms in various domains of data structures andprovidesdifferent programming paradigms for solving problems.

UNIT- I

Introduction – Performance Analysis. Divide and conquer Method: Binary Search, Finding Maximum and Minimum, Merge Sort and Quick Sort.

UNIT - II

Greedy Methods: Knapsack Problem, Minimum Cost Spanning Trees, Optimal Storage on Tapes and Single Source Shortest Path Problem.

UNIT - III

Dynamic Programming: Multistage Graphs, 0/1 knapsack and Traveling Salesman Problem. Basic Traversal and Search Techniques: Techniques for Binary Tree, Techniques for Graphs: Depth First Search and Breadth First Search - Connected Components and Spanning Tree - Biconnected Components and DFS.

UNIT - IV

Backtracking: 8 Queens Problems, Sum of Subsets, Graph Colouring, Hamiltonian Cycle and Knapsack Problem.

UNIT - V

Branch and Bound: Least Cost Search. Bounding: FIFO Branch and Bound and LC Branch and Bound.0/1 Knapsack Problem, Travelling Salesman Problem.

Text Book:

E.Horowitz, S.Sahni and Sanguthevarrajasekaran , Fundamentals of Computer Algorithms , Second edition, Universities Press.

Books for Reference:

- S. K. Basu, Design Methods and Analysis of Algorithms , PHI, 2005.
- Goodman and S. T. Hedetniem, Introduction to the Design and Analysis of
- Algorithms , MGH, 1977.
- A.V. Aho, J.D. Ullman and J.E.Hospcraft, The Design and Analysis of
- Computer Algorithms , Pearson Education.

SEMESTER –I			
Core IV- ADVANCED COMPUTER ARCHITECTURE			
Code:17PCSC14	**Hrs/week:5**	**Hrs/Semester:75**	**Credits:5**

Objectives

- To understand various addressing modes and program and network properties ,
- Learn the computer arithmetic principles and super scalar techniques
- Learn modern techniques of message passing mechanisms

UNIT I :Review of basics and ISA design:

Fundamentals of Computer Design: Introduction – Functional units of a Computer – Recent trends in technology – CISC vs RISC. Performance measure of a Computer: Performance measures, Performance parameters –Measuring the performance –Amdahl‟s Law and CPU performance. Benchmarks for evaluating the performance.

Design factors - operand and opcode types – Instruction formats and addressing modes – compiler Issues – structure of modern compilers.

UNIT II :Pipelining:

Pipelining: Definition – Basic characteristics of pipelined processing – Functional structure of pipelined computer – pipelined processor design principles - Performance issues- different types of Pipeline hazards.

UNIT III:Parallelism:

Definition and types of parallelisms – Instruction level parallelism – Different typed of dependencies in programs. – Dynamic scheduling –Score boarding– Tomasulo‟s approach-Branch prediction. Software Solution to ILP: Super Scalararchitecture – static and dynamic scheduling on a super scalar architecture. VLIW architecture – Vector processors -Compiler support for ILP.

UNIT IV:Shared Memory Architecture and Memory Organization:

Parallel processing Configurations – Flynn‟s classification – Centralized and distributed memory models. Communication models and memory architectures – Performance metrics for communication mechanisms- challenge- Cache coherence – Directory based cache coherence protocols. Memory hierarchy –strategies of Cache write – cache performance and improvements –Main Memory performance issues –Interleaved memory- Virtual Memory

UNIT V: I/O issues:

.I/O : Storage types, Busses –Bus transactions – I/O device Performance metrics – Queuing theory –Bus Standards –I/O transfer using memory bus -Connecting bus to Cache –Disk arrays – RAID LEVELS – SCSI – Example Parallel Processors.

Text Books:

1. K. A. Parthasarathy et.al – Advanced Computer Architecture, 2/e, Thomson Learning, Indian Edition, 2006

2. K. Hwang & F. A. Briggs – Computer Architecture and Parallel Processing, TMH, New Delhi 2004

Books for Reference:

- Kai Hwang &NareshJotwani "Advanced Computer Architecture Parallelism, Scalability, Programmability", McGraw Hill, Second Edition,2011
- D. Sima, T. Fountain & P. Kacsuk. Advanced Computer Architectures, Pearson. Education, New

SEMESTER- II			
CORE V– RELATIONAL DATABASE MANAGEMENT SYSTEM			
Code: 17PCSC21	**Hrs / week :5**	**Hrs / Semester: 75**	**Credits :5**

Objectives:

- To develop a Database with enhanced models and techniques
- To understand the fundamentals of Relational Database Management Systems and Object oriented Databases.

UNIT I:

Introduction : Purpose of Database Systems – View of Data – Data Models – Database languages – Data Storage and querying – transaction management – Database administrator – database users – overall system structure.

UNIT II:

Relational Database Design : Anomalies in a database –Functional dependency - Lossless join and dependency – Preserving Decomposition – Third normal form – Boyce codd normal form – Multivalued Dependency – Fourth normal form

UNIT III:

SQL: Data Definition – Data manipulation – Integrity constraints – views – PL/SQL.
Recovery :DBMS Transaction – DBMS data recovery -Recovery algorithm –DBMS data backup -Buffer management – Virtual memory and recovery – Logging schemes – Disaster recovery

UNIT IV:

Concurrency Management : Introduction – Serializability – Concurrency Control scheme – Locking schemes – Timestamp based order – Multiversion techniques – Deadlock and its resolutions – Recovery and atomicity- concurrency control and recovery.

UNITV:

Distributed databases: Introduction – Homogeneous and Heterogeneous databases – Distributed data storage – Distributed transactions –commit protocols – concurrency control – Distributed query processing – deadlocks in distributed systems.

Text Books: Abraham Silberschatz,Henry F Korth,S.Sudharsan,"Database System Concepts" , Tata McGrawHill,6th Edition,2011

Reference Books:

1. Bipin C. Desai , " An Introduction to Database Systems" , Galgotia Publications,2002.
2. Raghu Ramakrishnan and Johannes Gehrke, " Database Management Systems",McGraw – Hill Higher Education.
3. Elmasri,Navathe,"Fundamentals of Database systems,Pearson Education Asia, Third Edition.

SEMESTER- II			
CORE VI– Open Source Technology			
Code: 17PCSC22	**Hrs / week :5**	**Hrs / Semester: 75**	**Credits :5**

Objectives:

- To understand the concepts of open source technology
- To gain knowledge in Linux administration and developing application based on Linux.

UNIT I

Open Source Definition, The distribution terms of open source software, open source technology importance - Free and Open Source Software (FOSS), LAMP (Linux, Apache, MySQL, PHP, Pythonand Perl. Benefits, Perspectives of Open Source software-Linux and Open Source, Linux Usage Basics: Logging into the system, changing users and editing text file-.Running Commands and Getting Help- Browsing the File system, Users- Groups and Permissions.

UNIT II

Installation of Linux interactively-Perform user and group administration-Administer the Linux printing subsystem, Automate tasks with at, cron -Install, update, query and remove software packages with RPM. Apache Web server: Starting and Stopping and Restarting Apache- Configuration - Securing Apache - Create the Web Site-Apache Log Files.

UNIT - III

My SQL: Commands - Database Independent Interface - Tables – Loading and Dumping Database.

UNIT - IV

PHP: Embedding PHP into HTML -Configuration - Language Syntax: Variables - Data Types - Web variables - Operators - Flow Control Constructs - Writing PHP Papers.

UNIT - V

Built in PHP function - Important Functions - Array Functions – String Functions - Other Functions - PHP and MySQL: MySQL Functions.

Text Books:

1. Negus Christopher “Red Hat Linux Bible”, 2004, Wiley Publishers.
2. James Lee and Brent Lee “Open Source Development with LAMP - Using Linux , Apache, My SQL ,Perl and PHP”, Pearson Education , 2009.

Books for Reference:

- N.B.Venkateshwarlu (Ed); Introduction to Linux: Installation and Programming, 2005, B S Publishers.
- Nemeth, “Linux Administration Handbook”, 2nd edition, Pearson Education.
- VikramVaswani“ How to do Everything with PHP & MySQL , 2005, McGraw Hill.
- Meloni C Julie “PHP, MySQL and Apache”, 2003,Pearson Education.

SEMESTER- II			
CORE VII– DATA MINING			
Code: 17PCSC23	**Hrs / week :5**	**Hrs / Semester: 75**	**Credits :5**

Objective:

- To study the basic and advanced concepts in Data Mining Techniques. To understand thevarious algorithms involved in data mining and its applications.

UNIT I

Introduction: Basic Data Mining Tasks- Data Mining Versus Knowledge Discovery in Databases. Data Mining Techniques: Introduction-A Statistical Perspective on Data Mining-Similarity Measures- Decision Trees-Neural Networks-Genetic Algorithms

UNIT II

Classification: Introduction- Statistical Based Algorithms-Distance Based Algorithms-Decision Tree Based Algorithms-Neural Network Based Algorithms- Rule Based Algorithms-Combining Techniques.

UNIT III

Clustering: Introduction-Similarity and Distance Measures-Outliers Hierarchical Algorithms- PartitionalAlgorithms.

UNIT IV

Association Rules: Introduction-Large Item sets-Basic Algorithms-Parallel and Distributed Algorithms-Comparing Approaches-Incremental Rules-Advanced Association Rule Techniques- Measuring the Quality of Rules.

UNIT V

Web Mining: Introduction-Web Content Mining-Web Structure Mining-Web Usage Mining. Spatial Mining: Introduction- Spatial Data Overview- Spatial Data Mining Primitives-Generalization and Specialization-Spatial Rules- Spatial Classification Algorithms-Spatial Clustering Algorithms.

TEXT BOOK:

Margaret H. Dunham, "Data Mining Introductory and Advanced Topics", Pearson publications, Ninth Impression.

BOOKS FOR REFERENCE:

- K. P. Soman, ShyamDivakar, V. Ajay "Insight in to Data Mining Theory and Practice", PHI Learning Pvt. Ltd, 2006.
- Jiawei Han, MichelineKamber, Jian Pei " Data Mining Concepts and Techniques", Morgan Kaufmann Publishers, Third Edition

SEMESTER- III			
CORE IX – SMART DEVICESPROGRAMMING			
Code: 17PCSC32	**Hrs / week :6**	**Hrs / Semester: 90**	**Credits :6**

Objective

- Provide concepts to enable the students for creating applications for smart devices using Android.

UNIT I

Introduction to Android: History of Android - Versions of Android - Android Architecture - Application Architecture - Components - Intents - Mainfest - Application Package - Activities - Services - Broadcast Receivers - Content Providers - Installing the Android SDK - Installing an Android Platform - Creating an Android Virtual Device - Starting the AVD - Introducing UC - Creating UC - Installing and Running UC - Preparing UC for Publishing - Migrating to Eclipse - Developing UC with Eclipse.

UNIT II

User Interface: Customizing the Window - Creating and Displaying Views - Monitoring Click Actions - Resolution Independent Assets - Locking Activity Orientation - Dynamic Orientation Locking - Manually Handling Rotation - Creating Pop-up Menu Actions - Customizing Options Menu - Customizing Back Button - Emulating the Home Button - Monitoring TextView Changes - Scrolling TextView Ticker - Animating a View - Creating - Drawables as Backgrounds - Creating Custom State Drawables - Applying - Masks to Image - Creating Dialogs that Persist - Implementing Situation - Specific Layouts - Customizing Keyboard Actions - Dismissing Soft Keyboard - Customizing AdapterView Empty View - Customizing ListView Rows - Making ListView Section Headers - Creating Compound Controls.

UNIT III

Interacting with Device Hardware and Media - Interacting Device Location - Mapping Locations - Annotating Maps - Capturing Images and Videos - Making a Custom Camera Overlay - Recording Audio - Adding Speech Recognition - Playing Back Audio/Video - Creating a Tit Monitor - Monitoring Compass Orientation.

UNIT IV

Persisting Data : Marking a Preference Screen - Persisting Simple Data - Reading and Writing Files - Using Files as Resources - Managing a Database - Querying a Database - Backing Up Data - Sharing your Database - Sharing your other Data.

UNIT V

Interacting with the Systems: Notifying from the Background - Creating Timed and Periodic Tasks - Scheduling a Periodic Task - Creating Sticky Operations - Running Persistent Background Operations - Launching Other Applications - Launching System Application - other Applications - Interacting with Contacts - Picking Device Media - Saving to the MediaStore.Working with Libraries : Creating Java Library JARs - Using Java Library JARs - Creating Android Library Projects - Using Android Library Projects - Charting - Practical Push Messaging.

Text Book :

1. Dave Smith and Jeff Friesen, "Android Recipes: A Problem - Solution Approach", Rakmo Press (P) Ltd, New Delhi, 2011.

Web Reference

1. Android Developer's Guides - available at http://developer.android.com

SEMESTER –I			
CORE - PRACTICAL I- ADVANCED JAVA PROGRAMMING LAB			
Code:17PCSCR1	**Hrs/week:5**	**Hrs/Semester:75**	**Credits:4**

1. 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 Audio clip interface.
2. Create a Japplet using swing control, which will create the layout shownbelow and handle necessary events.

   Format

   Enter your Name:

   Enter your Age:

   Select your s/w: * Oracle *Visual Basic*Java

   Select your city : *Delhi *Mumbai*Chennai

   OK Cancel
3. Use JDBC connectivity and create Table, insert and update data.
4. Write a program in Java to implement a Client/Server application using RMI.
5. Write a program in Java to create Servlet to count the number of visitors to a web page.
6. Write a program in Java to create a form and validate a password using Servlet.
7. Write a program in Java to convert an image in RGB to a Grayscale image.
8. Develop Chat Server using Java.

SEMESTER –I			
CORE - PRACTICAL II - DESIGN AND ANALYSIS OF ALGORITHMS LAB			
Code:17PCSCR2	**Hrs/week:5**	**Hrs/Semester:75**	**Credits:4**

1. Sorting
2. Graph traversal
3. Prim's Algorithm-Greedy Method
4. N queen problem
5. Knapsack problem
6. Single Source Shortest Path
7. Sum of Subsets
8. Binary Search Tree
9. Graph Coloring
10. Biconnected Components
11. Travelling Salesman Problem

SEMESTER- II			
CORE ELECTIVE – WEB DESIGNING & MULTIMEDIA			
Code: 17PCSE21	**Hrs / week :6**	**Hrs / Semester: 90**	**Credits :3**

Objective:

- To study the basic and advanced concepts in Web designing and multimedia.

UNIT I : HTML

Introduction – Creating, Saving, Viewing HTML documents – Applying Structure tags – Linking - Images – Formatting Text

UNIT II:

Tables:Creatingtables,Inserting,Deleting,Updating,Formatting– Forms: Creating and processing forms - Frames:Understandingframes,Creatingframes,Enabling and Effective Frames,Creating inline Frames

UNIT III : XML

Introduction – New kinds on the block – displaying XML – XML in the real world – Well Formed and Valid Documents – Cascading Style sheets

UNIT IV: MULTIMEDIA

Definition – Where to use multimedia – Adobe Photoshop: Layering – Designing – Transporting – Filtering – Cropping - Rotating

UNIT V:

Flash: Text Effects – Frame by frame animation - animation using guided path animation using multilayer – text/ image morphing.

TEXT BOOKS:

- Mastering HTML 4, premium edition, Deborah S. Ray & Eric J. Ray, BPB Publications.
- Boumphrey, Stephen Mohr, Paul Houle, and others, 'XML Applications', Wrox Press Ltd, Sohr Publishers & Distributors Pvt Ltd.
- Photoshop CS5
- Flash CS5 in Simple Steps Edition-2011 Published by Dream Tech Press Authored byKogentLearing Solutions Inc

BOOKSFOR REFERENCE:

- Adobe photoshop CS6 Bible by Lisa DanaeDayley& Brad Dayley
- Web Technology & Design. Author, C. Xavier. Publisher, New Age International,

SEMESTER – III			
Core XIII	**Research Methodology**		
Code : 19PCSC33	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Vision:
Achieve outstanding scientific research in various areas of knowledge.

Mission:

Encourage distinguished research work through the creation of an attractive and stimulating environment to achieve goals.

Course Outcome :

CO. No.	Upon completion of this course, students will be able to	PSO addressed	CL
CO-1	integrating knowledge of research processes.	8	An
CO-2	identifying the overall process of designing a research study.	8	Re
CO-3	carrying out ethical issues in research.	8	Ap
CO-4	explaining the concepts of research and its methodologies.	2	Un
CO-5	identifying the key elements of a research report.	8	Re
CO-6	finding the problem for research.	8	An
CO-7	understanding Plagiarism and its types.	8	Un
CO-8	apply the knowledge of teaching methods for its wide applicability.	8	Ap

SEMESTER – III			
Core XIII	**Research Methodology**		
Code : 19PCSC33	**Hrs / Week : 4**	**Hrs / Sem : 60**	**Credits : 4**

Unit - I

Research Methodology– Introduction - Meaning of research – Objectives of research – Types of Research – Research Approaches – Significance of Research – Research Methods versus Methodology – Research and Scientific Method – Research Process - Criteria of Good Research.

Unit – II

Research Problem – Selecting the Problem – Necessity of Defining the Problem – Technique involved in defining a problem – Meaning of Research Design – Features of a good design.

Unit – III

Component of Scientific report – Scientific writing style – Report writing and its types – Reporting and Thesis writing – Citations – Citation Styles – Journal impact Factor – Bibiliography.

Unit – IV

Ethical issues within the research process – Research Commercialisation – Types of intellectual property – Royalty – Plagiarism – Types of plagiarism - Tools for detecting plagiarism

Unit – V

Methodology of teaching – Objectives for teaching – Structure of teaching – Phases of teaching – Various teaching methods.

Text Book:

1. Statistical Methods - S.P. Gupta

Books for Reference:

1. Research Methodology Methods and Techniques - C.R. Kothari
2. Statistics (Theory and Practice) - B.N. Gupta
3. Research Methodology Methods and Statistical Techniques - Santosh Gupta