CA211 : OBJECT ORIENTED PROGRAMMING THROUGH JAVA

Lectures	: 4 Periods/week	Sessional Marks	: 40
Practicals	: ---	Sem. End Exam Marks	: 60
Sem. End Exam Duration	: 3 hours	Credits	: 04

Prerequisites: CA111, CA121

Course Objectives

The main objectives of this course are:

- To learn the basics of java concepts and fundamentals of platform independent object oriented language.
- To Understand the concept as well as the purpose and usage principles of inheritance, polymorphism, interfaces and packages.
- To develop skills in writing programs using exception handling techniques and multithreading.
- To understand the Event Handling, Applets and AWT
- To gain in-depth understanding of networking program.

Course Outcomes

At the end of the course, student will be able to
- Apply the syntax and semantics of java programming language and basic concepts of OOP.
- Develop reusable programs using the concepts of inheritance, polymorphism, interfaces and packages.
- Apply the concepts of Multithreading and Exception handling to develop efficient and error free codes and also demonstrate how the java program communicates with the console and disk files using the concept of streams.
- Implement Event Handling, Applets and AWT controls
- Design event driven GUI and web related applications and develop network programs for TCP and UDP.

UNIT – I (12 Periods)

The History and Evolution of Java, An Overview of Java, Data Types, Variables, and Arrays, Operators, Control Statements.

Introducing Classes: Class fundamentals, Declaring the objects, Assigning Object Reference Variables, Introducing Methods, Constructors, The this keyword, Garbage Collection, the finalize() Method.

A Closer Look at Methods and Classes: Overloading Methods, Using objects as Parameters, Returning Objects, Introducing Access control, Understanding static and final keywords, Nested and Inner Classes, Varargs.

UNIT – II   **(12 Periods)**

Inheritance: Inheritance Basics, Using super, creating multilevel Hierarchy, when Constructors are executed, Method Overriding, Dynamic Method Dispatch, Using Abstract Classes, using final with Inheritance, The Object class.

Packages and Interfaces: Packages, Access Protection, Importing Packages, Interfaces, Default Interface Methods, Use static Methods in an Interface.

String Handling: String class, StringBuffer class, StringBuilder Class.

UNIT – III   **(12 Periods)**

Exception Handling: Fundamentals, Exception types, Uncaught Exceptions, Using try and catch, Multiple catch Clauses, Nested try Statements, throw, throws, finally, Java's Built-in Exceptions, Creating Your Own Exception Subclasses.

Multithreaded Programming: The Java Threaded Model, The Main Thread , Creating a Thread, Creating Multiple Threads, Using isAlive() and join(), Thread Priorities, Synchronization, Inter Thread Communication, Suspending, Resuming, Stopping Threads, Obtaining A Thread's State.

I/O Basics: Streams, Byte streams, Character streams, Reading Console Input, Writing Console Output, The PrintWriter Class, Reading and Writing Files.

UNIT – IV   **(12 Periods)**

Applets - Applet Fundamentals, **The Applet Class**: Applet Basics, Applet Architecture, An Applet Skeleton, Simple Applet Display Methods, Requesting Repainting, The HTML APPLET Tag, Passing Parameters to Applets.

Event Handling: Two Event Handling Mechanisms, The Delegation Event Model, Event Classes, The KeyEvent Class, Sources of Events, Event Listener Interfaces, Using The Delegation Event Model, Adapter Classes , Inner Classes.

Introducing the AWT: Working with Windows, Graphics, and Text- AWT Classes, Window Fundamentals, Working with Frame Windows, Creating a Frame Window in an AWT-Based Applet, Creating a Windowed Program, Displaying Information Within a Window, Introducing Graphics, Working with Color.

UNIT – V   **(12 Periods)**

Using AWT Controls, Layout Managers, and Menus - AWT Control Fundamentals, Labels, Using Buttons, Applying Check Boxes, CheckboxGroup, Choice Controls , Using Lists, Managing Scroll Bars, Using a TextField, Using a TextArea , Understanding Layout Managers, Menu Bars and Menus.

Introducing GUI Programming with Swing: Introducing Swing, Exploring Swing –Jlabel and ImageIcon, JTextField, The Swing Buttons, JTabbedPane, JScrollPane JList, JComboBox, Trees and JTable.

Networking: Networking Basics, The Networking Classes and Interfaces, InetAddress, TCP/IP Client sockets, URL, URL connection, TCP/IP sockets Server Sockets, Datagrams.

Prescribed Book:

1. Herbert Schildt, "Java The Complete Reference", 9th Edition, McGraw Hill Education (India) Private Limited, New Delhi.

Reference Books:

1. Paul Dietel and Harvey Dietel, "Java: How to Program", Ninth Edition, PHI
2. Cay Horstmann, "Big Java", 4th Edition, JOHN WILEY & SONS, INC.
3. Y.Daniel Liang, "Introduction to Java programming", Pearson Publication.

Web References:

1. http://www.cplusplus.com/reference/
2. http://en.cppreference.com/w/
3. http://www.decompile.com/
4. http://www.programmingsimplified.com/cpp
5. http://www.learncpp.com/
6. http://www.stroustrup.com/

CA212: WEB Technologies

Lectures	: 4Periods/week	Sessional Marks	: 40
Practicals	: ---	Sem. End Exam Marks	: 60
Sem. End Exam Duration	: 3 hours	Credits	: 04

Prerequisite: CA123 (Computer Networks).

Course Objectives
- To explain basic technologies to develop web documents.
- To apply CSS to web documents.
- To demonstrate Dynamic HTML Pages and Event handling mechanism.
- To illustrate XML, Web Servers and JDBC.
- To describe Java Servlet technologies.

Course Outcomes
At the end of this course students will be able to
- Create static web pages using HTML, CSS.
- Evaluate client side Webpages using JavaScript.
- Design and describe Dynamic Webpages using JavaScript event handling.
- Create Webpages using HTML5 canvas element.
- Create XML documents and work with web servers to create web applications with JDBC.
- Write server side programs with Java Servlet Technologies.

UNIT – I   (14 Periods)
Introduction to HTML 5: Part 1 and Part 2.
Introduction to Cascading Style Sheets (CSS): Part 1 and Part 2.

UNIT – II   (14 Periods)
JavaScript: Introduction to scripting, Control Statements I and II, Functions, Arrays, Objects.

UNIT – III   (10 Periods)
Document Object Model (DOM): Objects and Collections.
JavaScript Event Handling: A deeper look.
HTML 5: Introduction to canvas: Introduction- canvas Coordinate System- Rectangles-Using Paths to Draw Lines- Drawing Arcs and Circles- Shadows-Quadratic Curves- Linear Gradients-Images-Image Manipulation: Processing the Individual Pixels of a canvas-Patterns-Transformations- Text-Resizing the canvas to fill the Browser Window.

UNIT – IV   (10 Periods)
XML: Introduction- XML Basics- Structuring Data-XML Namespaces-Document Type Definitions (DTDs)- W3C XML Schema Documents-.XML Vocabularies- Extensible Stylesheet Language and XSL Transformations-Document Object Model (DOM).
JDBC: Introduction to JDBC - Connections - Internal Database Connections - Statements - Results Sets - Prepared Statements - Callable Statements.

UNIT – V   (12 Periods)
Web Servers: Introduction-HTTP Transactions- Multitier Application Architecture-Client-Side Scripting versus Server-Side Scripting-Accessing Web Servers-Apache Installation
Servlets: Background, Lifecycle of a Servlet, Servlet development options, The Servlet API, The javax.servlet Package, Reading Servlet parameters,The javax.servlet HTTP package, Handling Http Request & Responses, Using Cookies, Session Tracking.

Prescribed Books
1. Paul Deitel, Harvey.Deitel, Abbey.Deitel, "Internet and World Wide Web How To Program", Fifth Edition, PHI Pvt. Ltd.
2. Herbert Schildt, "Java: The Complete Reference", 9thEdition, McGraw Hill Education (India) Private Limited, New Delhi.
3. Donald Bales, "Java Programming with JDBC", O'Reilly

Reference Books:
1. "Web Technologies – Black Book", drematech, 2013.
2. Jason Cranford Teague "Visual Quick Start Guide CSS, DHTML & AJAX", 4th edition, Perason Education.
3. Tom Nerino Doli Smith "JavaScript & AJAX for the Web" Pearson Education, 2007.
4. Uttam K.Roy, "Web Technology", Oxford University Press, 2010.

Web References:
1. www.w3schools.com
2. www.tutorialspot.com
3. www.deitel.com

CA213: CRYPTOGRAPHY AND NETWORK SECURITY

Lectures	: 4 Periods/week	Sessional Marks	: 40
Practicals	: ---	Sem. End Exam Marks	: 60
Sem. End Exam Duration	: 3 hours	Credits	: 04

Prerequisite: CA123 (Computer Networks).

Course Objectives
- To describe Network security attacks, Classical and symmetric encryption schemes.
- To explain Concepts of public key encryption and key management schemes.
- To illustrate Authentication and Secure hash functions.
- To use Network security applications like Kerberos, PGP and IPSecurity.
- To demonstrate Intrusion detection and Firewall Design Principles.

Course Outcomes
At the end of the course, the students will be able to:
- Analyze common network security attacks and apply classical and symmetric encryption schemes.
- Demonstrate Analyse the concepts of public key encryption and key management schemes.
- Apply MAC, Hashing techniques and Digital signatures needed for authentication.
- Design the IP security header formats, Web Security, Email Security and know the applications like Kerberos, PGP.
- Explain Understand the concept of Firewalls configuration, Intrusion detection techniques and malicious software.
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UNIT – I   12Periods
Classical Encryption Techniques: Symmetric cipher model –substitution techniques –transposition techniques-Rotor machines-Steganography.
Block Ciphers and the Data Encryption Stands: Traditional Block Cipher Structure-The Data Encryption Standard –ADES Example-The Strength of DES-Block Cipher Design Principles.

UNIT - II   12Periods
Number Theory: Prime number-Fermat's Euler's Theorems-Testing for Primality-The Chinese Remainder Theorem-Discrete Logarithms

Public-Key Cryptography and RSA: Principles of public-Key Crypto System-The RSA Algorithm
Other Public Crypto systems: Diffie-Hellman key exchange Algorithm.

UNIT - III   12Periods
Cryptographic Hash Functions: Applications of cryptographic Hash Functions-Two simple hash Functions-requirements and Security-SHA
Message Authentication codes: Message Authentication Requirements-Message Authentication Functions-Requirements for message Authentication Codes-Security of MACs-CMAC
Digital Signatures: Digital Signatures -Elgamal DSS-Schnorr DSS-NIST DSS Algorithm

UNIT – IV   **14Periods**

Key management and Distribution: Symmetric Key Distribution-Using Symmetric Encryption-Symmetric key distribution using Asymmetric Encryption-Distribution of Public Keys-X.509 Certificates

User Authentication: Remote User –Authentication Principles-Remote user-Authentication using Symmetric Encryption- Kerberos –Remote user Authentication using Asymmetric Encryption.

Transport -Level Security: Web security Considerations-SSL-TLS.

Email Security: PGP-S/MIME

 IP Security: IP Security Overview- IP security Policy-Encapsulating Security payload-Combining Security Associations-Internet Key Exchange

UNIT - V   **10 Periods**

Intruders: Intruders, Intrusion detection, Password management

Malicious Software: Viruses and related threads, virus counter measures, distributed denial of service attacks

Firewalls: Firewall Design Principles, trusted system, common criteria for information technology, security evaluation.

Prescribed Book
1. William Stallings, Cryptography and Network Security, 6th Edition, Pearson Education, March, 2013.
2. William Stallings, Cryptography and Network Security, 4th Edition, PHI.
Chapters: 18.1, 18.2, 18.3, 19.1, 19.2, 19.3, 20.1, 20.2, 20.3

Reference Books
1. William Stallings, Cryptography and Network Security, 4th Edition, PHI.
2. Behrouz A. Ferouzan, "Cryptography & Network Security", Tata McGraw Hill, 2007.
3. Man Young Rhee, "Internet Security: Cryptographic Principles", "Algorithms and Protocols", Wiley Publications, 2003.
4. Charles Pfleeger, "Security in Computing", 4/e, Prentice Hall of India, 2006.
5. Ulysess Black, "Internet Security Protocols", Pearson Education Asia, 2000.
6. Charlie Kaufman and Radia Perlman, Mike Speciner, "Network Security, Second Edition, Private Communication in Public World", PHI 2002.
7. Bruce Schneier and Neils Ferguson, "Practical Cryptography", First Edition, Wiley Dreamtech India Pvt Ltd, 2003
8. Douglas R Simson "Cryptography – Theory and practice", First Edition, CRC Press, 1995.
9. Charlie Kaufman, Radia Perlman and Mike Speciner, "Network Security", Prentice Hall of India, 2002.

Web References
1. http://nptel.ac.in/
2. https://www.tutorialspoint.com/cryptography/

CA214 : OPERATIONS RESEARCH

Lectures	: 4 Periods/week	Sessional Marks	: 40
Practicals	: ---	Sem. End Exam Marks	: 60
Sem. End Exam Duration	: 3 hours	Credits	: 04

Prerequisite: Basic Programming and Mathematics.

Course Objectives
- Grasp the methodology of OR problem solving and formulate linear programming problem.
- Develop formulation skills in transportation& assignment models and finding solutions.
- Understand the basics in the field of game and decision theory problems.
- Understand project management techniques.
- Understand basic inventory models.

Course Outcomes
At the end of the course, students will be able to:
- Recognize the importance and value of Operations Research and linear programming in solving practical problems in industry.
- Interpret the transportation & assignment model solutions and infer solutions to the real-world problems.
- Recognize and solve game theory and decision theory problems.
- Gain knowledge of drawing project networks for quantitative analysis of projects.
- Know about basic inventory models.

UNIT- I   14 Periods
Linear Programming: Introduction, formulation of Linear Programming Models, Graphical solution of Linear programming Models, Maximization with Less-than-or- equal to constraints, equalities and Greater than or equal to constraints, Minimization of the objective function, the simplex Method, properties of simplex Method.

UNIT- II   12 Periods
Transportation problem: Basic feasible solution by north-west corner method, Vogel's approximation method, least cost method .Finding optimal solution by MODI method. Degeneracy, unbalanced transportation matrix and Maximization in transportation model.
Assignment Problem: One-to-one assignment problem, optimal solution, unbalanced assignment matrix. Traveling salesman problem.

UNIT- III   12 Periods
Game Theory: Introduction, Minimax -Maxmini pure strategies, Mixed Strategies and Expected Payoff, solution of 2x2 games, dominance, solution of 2xn games, solution of mx2 games, Brown's algorithm.
Decision Theory: Introduction, decision under certainty, Decision under risk- expected value criterion, expected value combined with variance criterion, decision under uncertainty, decision tree.

UNIT- IV   10 Periods
PERT and CPM: Introduction, PERT Network, Time Estimates for Activities, Earliest
Expected completion of events, Latest Allowable Event Completion time, Event Slack Times,
Critical path method.

UNIT- V   12 Periods
Deterministic inventory Models: Introduction, Infinite Delivery Rate with no Backordering,
Finite delivery Rate with no Backordering, Infinite Delivery Rate with Backordering and
finite Delivery rate with Backordering.

Prescribed Books
1. S.D. Sharma,"Operations Research", KedarnathRamnath& Co, 11/e, 2002.
2. Hiller and Liberman,"Introduction to Operations Research", MGH, 7/e, 2002.
3. R. Pannerselvam,"Operations Research", 2/e,PHI, 2006.
4. V.Vohra,"Quantitative techniques for management", 3/e, TMH.

Reference Books
1. J K Sharma, "Operation Research theory and applications", Third edition, Macmillan
2. Belly E. Gillett, "Introduction to Operations Research - A computer-oriented algorithmic
   approach", TMH (2008).
3. Phillips, Ravindran, James Soldberg,"Introduction to Operations Research", Wiley 1976.
4. S.S. Rao,"Optimization Theory and Applications", Wiley 1979.
5. Gupta and Hira, S. Chand,"Operations Research", 2008.

Web References
1. https://www.easycalculation.com/operations-research/operations-research-
   tutorial.php
2. http://www.thelearningpoint.net/home/mathematics/an-introduction-to-operations-
   research
3. https://www.euro-online.org/web/pages/1565/euro-advanced-tutorials-in-
   operational-research
4. http://pubsonline.informs.org/series/educ

CA215 : SOFTWARE ENGINEERING

Lectures	: 4 Periods/week	Sessional Marks	: 40
Practicals	: ---	Sem. End Exam Marks	: 60
Sem. End Exam Duration	: 3 hours	Credits	: 04

Prerequisites:CA111(Problem Solving with C), CA125 (Management Information Systems).

Course Objectives
- To explain basic concepts of software engineering methods and practices.
- To analyze software requirements modelling.
- To develop software design concepts.
- To demonstrate software quality management and software testing techniques.
- To determine software Product, Process and Project Metrics.

Course Outcomes
At the end of the course, the student will be able to
- Identify various Process Models for Analyse, design, implement, verify, validate and maintain software systems.
- Analyse software requirements from various stakeholders.
- Develop architectural and component diagrams for the systems.
- Evaluate the quality of the systems build.
- Apply measures and metrics for product, process and project for cost -effective software solutions.
- Identify the impact of potential solutions to complex problems in a global society.

UNIT-I   12 Periods
Software and Software Engineering
The Changing Nature of Software, The Unique nature of WebApps, Software Engineering, The Software Process ,Software Engineering Practice, Software Myths.
Process Models
A Generic Process Model, Process Assessment and Improvement, Perceptive Process Models, Specialized Process Models, The Unified Process, Personal and Team Process Models, Process Technology, Product and Process.
Agile Development
What is Agility? , Agility the cost of change, what is an Agile Process? Extreme Programming, Other Agile Process Models, A Tool set for the Agile Process.

UNIT-II   12 Periods
Principles that Guide   Practice
Software Engineering Knowledge, Core Principles, Principles that guide each framework activity.
Understating Requirements
Requirements Engineering, Establishing the groundwork, Eliciting Requirements, Developing Use Cases, Building the Requirements Model, Negotiating Requirements, Validating Requirements

Requirements Modeling: Scenarios, Information, and Analysis Classes Requirement Analysis, Scenario Based Modeling, UML Models that support the use case, Data Modeling Concepts, Class Based Modeling.

Requirements Modeling: Flow, Behavior, Patterns and WebApps
Requirement Modeling Strategies, Flow-Oriented Modeling, Creating a Behavioral Model, Patterns for requirements Modeling, Requirements Modeling for WebApps. **Case Study 1:** Prepare SRS document for computer based information system.Develop functional and non-functional requirements for the selected information system.

UNIT-III   12 Periods
Design Concepts
Design within the Context of Software Engineering, Design Process, Design Concepts, Design Model.

Architectural Design
Software Architecture, Architectural Genres, Architectural Styles, Architectural Design, Assessing Alternative Architectural Designs, Architectural Mapping using Data Flow.

Component-Level Design
What Is a Component? , Designing Class-Based Components, Conducting Component-Level Design, Component-Level Design for WebApps, Designing Traditional Components, Component-Based Development.

Case Study 2: Design and develop architectural diagrams for the system in casestudy 1.

UNIT-IV   12 Periods
Quality Concepts
What is Quality? Software Quality, Software Quality Dilemma, Achieving Software Quality.

Software Testing Strategies
Strategic Approach to software testing, Strategic Issues, Test strategies for Conventional Software, Test strategies for Object Oriented Software, Test strategies for WebApps, Validation Testing, System Testing, The Art of Debugging.

Testing Conventional Applications
Software Testing Fundamentals, Internal and External Views of Testing, White-Box Testing, Basis Path Testing, Control Structure Testing, Black-Box Testing, Modeling-based testing, Testing for Specialized Environments, Architectures and Application, Patterns for software testing.

Case Study 3: Design and develop test cases for the system in case study 1.

UNIT-V   12 Periods
Product Metrics
A Framework for Product Metrics, Metrics for the Requirements Model, Metrics for the Design Model, Design Metrics for WebApps, Metrics for source codes, Metrics for Testing, Metrics for Maintenance.

Process and Projects Metrics
Metrics in the Process and Project Domains, Software Measurement, Metrics for Software Quality, Integrating Metrics within the software Process, Metrics for small organizations, Establishing a software metrics program.

Prescribed Book
1. Roger S.Pressman,"Software Engineering, A Practitioner's Approach", Seventh Edition.

Reference Books
1. Ian Sommerville, "Software Engineering", Sixth Edition, Pearson Education.
2. Carlo Ghezzi, Mehdi Jazayeri, Dino Mandrioli, "Fundamentals of Software Engineering", Second Edition, PHI.
3. Rajib Mall, "Fundamentals of Software Engineering", Second Edition, PHI.

Web References
1. https://archive.org/details/SoftwareEngineering7thEDByRogerS.Pressman
2. http://ceit.aut.ac.ir/~91131079/SE2/SE2%20Website/Lecture%20Slides.html
3. www.rspa.com/spi/www.sei.cmu.edu/
4. http://www.pearsonhighered.com/educator/product/Software-Engineering/ 9780137035151.page
5. http://www.agilemanifesto.org/
6. http://www.tutorialspoint.com/software_engineering/
7. http://www.tutorialride.com/software-engineering/software-engineering-tutorial.htm

CA251 : JAVA PROGRAMMING LAB

Lectures	: ---	Sessional Marks	: 40
Practicals	: 6 Periods/week	Sem.End Exam Marks	: 60
Sem. End Exam Duration	: 3 hours	Credits	: 02

Prerequisites:CA111(Problem Solving with C), CA121(Data Structures in Python).

Course Objectives
At the end of the course the students will understand
- To build software development skills using java programming for real world applications.
- To implement GUI applications
- To implement concept of process synchronization.
- To learn the network programming.

Course Outcomes
At the end of the course the students will be able to
- Develop object-oriented concepts using java programming
- Create the real-time applications.
- Develop networking applications.

List of Programs
1. Write a program that displays the roots of a quadratic equation $ax2+bx+c=0$. Calculate the discriminant D and basing on the value of D, describe the nature of roots.
2. Write a menu driven Program to perform the various Bitwise operators.
3. Write a program to perform the following operations on single dimensional array.
   a) Find minimum and maximum elements.
   b) Sum of the elements.
   c) Sort given list of number.
   d) Search for an element.
   e) Remove duplicates.
4. Write a program to implement possible operations on matrix.
5. Write a program to implement the following on strings.
   a) Reverse of the given string.
   b) Check whether the given sting is Palindrome or not.
   c) Comparison of two strings.
   d) Sort an array of strings
   e) Sort an array of strings using command line arguments.
6. Write a Program to define a student class, describe its constructor, overload the Constructors and instantiate its object.
7. Program to implement operations on complex numbers (Passing object to methods and use 'this' keyword).
8. Write a program to Implement the following bank operations (Use array of objects)
   a. withdraw   b. deposit   c. Transfer
9. Write a program that displays area of different Figures (Rectangle, Square, Triangle) using the method overloading.
10. Write a Java program that counts the number of objects created by using static variable and static method.

11. Write a program that uses both recursive and non-Recursive methods to print the nth value of the Fibonacci sequence.
12. Write a program to perform the following:
    a) Call by Value b) Call by Reference.
13. Write a program to create a player class and inherit three sub classes Cricket_Player, Hockey_Player, FootBall_Player.
14. Write a program to implement method overriding.
15. Write a program to give a simple example for abstract class.
16. Write a program to implement finals, blank finals, final methods and final class. Write observations.
17. Write a program to find the details of the students eligible to enroll for the examination (Students, Department combinedly give the eligibility criteria for the enrollment class) using interfaces.
18. Write program to implement a package.
19. Write a program that displays number of characters, lines and words in a text file.
20. Write a program to implement User defined Exception and handle that exception.
21. Write a program to create thread life cycle.
22. Write a program that displays the time continuously using threads.
23. Write a program to develop a producer and consumer problem using Thread.
24. Write an Applet program to create a simple calculator to perform addition, subtraction, multiplication and division using Button, Label and TextField components.
25. Write a program to implement the following Evens: a) Keyboard event. b) Mouse event.
26. Write a program that implement the concept of Swing application using swing components.
27. Write a program to implement client-server communication using (i) TCP (ii) UDP

Web References:
1. http://www.cplusplus.com/reference/
2. http://en.cppreference.com/w/
3. http://www.decompile.com/
4. http://www.programmingsimplified.com/cpp
5. http://www.learncpp.com/
6. http://www.stroustrup.com/

CA252 : WEB TECHNOLOGIES LAB

Lectures	: ---	Sessional Marks	40
Practicals	: 6 Periods/week	Sem.End Exam Marks	60
Sem. End Exam Duration	: 3 hours	Credits	02

Prerequisite:CA111(Problem Solving with C).

Course Objectives
At the end of the course the students will understand
- Basic technologies to develop web documents.
- Dynamic HTML Pages and Event handling mechanism.
- XML and Web Servers.
- Java Servlet technologies.

Course Outcomes
At the end of the course the students will be able to
- Create static web pages using HTML, CSS, and JavaScript.
- Design dynamic WebPages using client side scripting.
- Create XML documents and work with web servers to create web applications
- Write server side programs with Java Servlet Technologies.

List of Programs
1. Create a web page with the following using HTML
   a. To embed an image map in a web page
   b. To fix the hot spots
   c. Show all the related information when the hot spots are clicked.
2. Create a form with the following specifications
   a. Our form uses frames, one to hold the links bar at the top of the browser window. Other is a larger frame that provides the main view. The links bar should contain 5 links, which when clicked, should display the appropriate HTML file in the larger frame. Using the concept of "Nested Frames", obtain the output as follows:

The right hand frame must display the output of the file that is entered in the top-left frame. The bottom left-hand frame displays the selected background color.

3. Create a home page for "Cyber book stores" that will display the various books available, the authors and prices of the books. Include a list box that contains various subjects and a "submit" button, which displays information about the books on the subject required by the user.

4. Create a HTML form that interacts with the user. Collect first name, last name and date of birth and display that information back to the user.

5. Create a web page with all types of Cascading style sheets.

6. Create a bank entry form using appropriate form elements. The account number must not be visible on the screen. The name and address must be stored in one place. There must be a text box showing the opening balance of the customer. The user should be able to make a choice of either a deposit (or) withdrawal transaction. Accordingly, when the user deposits (or) withdraws money, the opening balance must be updated using CREDIT/DEBIT button. The user should not be able to make any entries in the opening balance text box.

7. Create forms for the objects "stu_info", "College" and "Experience". Place textboxes for all the fields in the form "stu_info". Create two tables for storing data for the "college" and "experience" forms and place textboxes for all the fields in a three row format. Place two buttons "update" and "retrieve" in the form "execute".

8. Using functions, write a JavaScript code that accepts user name and password from user. Check their correctness and display appropriate alert messages. Restrict the user to try only for a maximum of three times.

9. Modify the above program that suits the following requirements:
   i. After a lapse of 15 seconds, the password should be generated automatically.
   ii. For impatient users, place a button that displays the passwords immediately without waiting for 15 seconds.

10. Create an HTML file for registration with three text fields name, mobile number and address. Write javascript to validate name, mobile number and address. Mobile number should be of 10 digits. Show alert message when use enter invalid entity.

11. Write a script to open a new window, after clicking a button named "New". After displaying the new window, the original window should be closed automatically.

12. Write an application to create a "customer interaction form", that accepts the name, age and salary of a customer who approaches the bank to obtain education loan for their children. He/She should furnish details about his/her marital status and children. Accept this information in textboxes and two check boxes. Display whether the customer is eligible for the loan (or) not, based on the furnished information.

13. Write a program to display a form that accepts student's name, age, father name. When age field receives its focus display message that age should be 18 to 25. After losing its focus from age field verify user entered in between given values or not display respective message.

14. Perform the following using JavaScript
    a. To update the information into the array, in the "onClick" event of the button "Update".
    b. To sort the elements of an array (Use array object)
    c. To find the duplicate elements of an array

15. Demonstrate the following:
    a. String and Math objects
    b. Alphabetic and Numeric fields
    c. Calendar object
16. Write an XML file which will display the Book information which includes the following:
    1) Title of the book
    2) Author Name
    3) ISBN number
    4) Publisher name
    5) Edition
    6) Price
    Write a Document Type Definition (DTD) to validate the above XML file. Display the XML file as follows:
    The contents should be displayed in a table. The header of the table should be in color GREY. And the Author names column should be displayed in one color and should be capitalized and in bold. Use your own colors for remaining columns. Write code for displaying XML using XSL.
17. Create tables in the database which contain the details of items (books in our case LikeBook name,Price, Quantity, Amount) of each category. Modify your catalogue page in such a way that you should connect to the database and extract data from the tables and display them in the catalogue page using JDBC.
18. Write a program on Generic Servlets.
19. Write a program on Http Servlets.
20. Demonstrate Cookie and Session Management in Servlets.

Web References:
1. www.w3schools.com
2. www.tutorialspot.com
3. www.deitel.com

CA253: TECHNICAL SEMINAR AND REPORT WRITING LAB

Lectures	: ---	Sessional Marks	: 40
Practicals	: 4 Periods/week	Sem.End Exam Marks	: 60
Sem. End Exam Duration	: 3 hours	Credits	: 02

Prerequisite: CA151 (PC Software Lab), CA153 (Communication Skills Lab).

Course Objectives

The student should be able to
- Develop listening skills for academic and professional purposes.
- Acquire the ability to speak effectively in English in real-life situations.
- Inculcate reading habit and develop effective reading skills.
- Construct workplace documents that demonstrate understanding of management communication contexts, genres, and contemporary business topics.
- Analyse and use quantitative data in professional documents.
- Recognize, explain, and use the formal elements of specific genres of organizational communication: white papers, recommendation and analytical reports, proposals, memorandums, web pages, wikis, blogs, business letters, and promotional document.

Course Outcomes

Upon completion of this course, the student will be able to:
- Gain confidence in facing the placement interview.
- Develop effective communication skills (spoken and written).
- Interact with each other and face a wide variety of issues, topics, and situations that they are likely to come across an entry level professionals.
- Explain the ethical, international, social, and professional constraints of audience, style and content for writing situations.
- Demonstrate effective use of secondary research resources (such as electronic databases) as well as primary data gathering strategies.
- Identify different format features in print, multimedia, and HTML documents, and develop document design skills.
- Revise and effectively edit all assignments, including informal media (such as email messages to the instructor).

Guidelines

Selection
- Seminar topic must be of current relevance in Computer science or interdisciplinary.
- Select topic from refereed journals/magazines such as CSI, IEEE, Springer, etc. other than textual topics.
- Seminar topic abstract to be submitted to the coordinator by the target date.

PowerPoint Preparation
  i. The PowerPoint Presentation should contain the following slides:
     - Title Slide with Name, Roll No., etc.
     - Abstract
     - Introduction
     - Architecture / Methodology
     - Applications, Advantages, Disadvantages, Comparisons, etc. may be included wherever necessary.
     - Conclusion and References.
  ii. Contents should be neat and clear with proper diagrams & pictures wherever   necessary.
  iii. Video clips / Flash animations may be used.

Presentation
  i. Presentation on the selected topic is for a minimum of 30 minutes including the discussion for 5 minutes.
  ii. Reading and referring any written content continuously will not be permitted during presentation.
  iii. Credit for the participation in discussion will be awarded to the students accordingly.

Note: During presentation the examiner evaluate student performance based on body language, communication, presentation and confidence levels.

Report Preparation
  i. The final report of seminar should be prepared using Latex only
  ii. The seminar report must not be the reproduction of the original papers.
  iii. Final seminar report has to be prepared according to the rules and regulations specified by department (placed in the Moodle) and have to submit the same to the seminar coordinator for approval.
  iv. The certified seminar report to be submitted to the coordinator by the date specified.

Web Reference
  1. http://gvv.mpi-inf.mpg.de/teaching/how_to_thesis/