Course Name : Advanced Java Programming

Course Type: DSE   Course Credits: 3+1 credits

Course objectives: Develop error-free, well-documented Java programs; develop and test Java network, search engine, and web framework programs. Learn how to write, test, and debug advanced-level Object-Oriented programs using Java.

Learning outcomes :

After successful completion of this course student will be able to:

1. Understand some of the concepts of advanced programming and practice on reusing components.

2. Implement Graphical User Interface (GUI) networking, and database manipulation.

3. Use advanced technology in Java such as Internationalization, and Remote method Invocation

4. Work with JavaBeans.

5. Develop web application using Java Servlet and Java Server Pages technology.

6. Understand JSP concepts

Unit 1:
Java String Handling, String constructors, Special String Operations, character extraction, string comparison, searching, modification, String buffer and operations. Simple Type wrappers in Java. Java Collections. Overview of Interfaces (Collection, Set, List, Queue, Map etc). Overview of classes. Working with classes. Overview of Algorithms

Unit 2:
Java Input/output: Files, Directories, Creating Files and Directories, The stream classes, Character Streams. Designing Simple File Handling Programs.
Event Handling, The Delegation Event model, Events, Event Sources, Listeners, Event Classes, Event Listener Interfaces, Handling Mouse and Keyboard Events.

Unit 3:
Introduction to AWT, working with windows, Graphics and Text, AWT Classes, Window Fundamentals, Frames, Working with Graphics, color, Fonts. Designing simple programs. Using AWT controls, Layout Managers and Menus. Adding and Removing controls. Responding to controls. Handling Events.
Introduction to Web Application and Servlets, Servlet Life Cycle, Servlet API, and Configuration.

Unit 4:
Introduction to Swings: JApplet, Icons, labels, Text fields, Buttons, Combo boxes, Tabbed Panes, Scroll Panes. Exploring Swings with simple programs. Introduction to Java Database Connectivity. Inserting, Deleting and updating database. Performing basic operations on Records.
Introduction to JSP and JSP Lifecycle,Scripting Elements: Scriptlet, Expression, and Declaration

Recommended Books:
1) Programming with Java,E.Balaguruswamy,Tata McGraw Hill
2) Java The Complete Reference, Herbert Schidt,Tata McGraw Hill
3) Java How to program, Dietel and Dietel,Pearson Education

Course Name : Lab on Advanced Java Programming

List of Practical

- Implement various String handling methods in Java.

- Construct different types of Strings and perform various operations.

- Demonstrate the use of character extraction from a String.

- Create a program for String comparison and searching.

- Modify a String using various String operations.

- Demonstrate the use of Simple Type wrappers in Java.

- Implement a program using Java Collections - Set, List, Queue, Map, etc.

- Implement file and directory creation operations in Java.

- Write a Java program to use stream classes and character streams.

- Design a simple program for file handling operations in Java.

- Implement an Event Handling program demonstrating the Delegation Event model.

- Create a program for handling Mouse and Keyboard Events.

- Create a simple AWT application, demonstrating the use of windows, graphics, and text.

- Develop an application using AWT controls, Layout Managers, and Menus.

- Add and Remove controls in an AWT application and handle events.

- Create a simple servlet program, demonstrate the servlet life cycle and configuration.

- Design a simple Swing application, Use JApplet, Icons, labels, Text fields, Buttons, Combo boxes, Tabbed Panes, Scroll Panes.

- Create a JDBC application, perform insert, delete, and update operations on a database.

- Design a program to perform basic operations on Records in a database using JDBC.

- Create a basic JSP page, demonstrate the JSP Lifecycle, Scripting Elements: Scriptlet, Expression, and Declaration.