



## **\*\*Java\*\***

### **Course Description:**

The contents of this course are a comprehensive solution that moulds you to a java specialist by providing a combination of on hand labs and the training provided in the class. It helps the trainee to learn and develop various java technology applications that definitely meets the current industry needs.

### **CORE JAVA**

#### **Section 1: Object Oriented Programming - How to Approach a System?**

- 1.1 Describe the concept and features of object-oriented programming
- 1.2 Create classes and objects and add methods to a class
- 1.3 Basic concepts in OOPS
- 1.4 Real World Comparison

#### **Section 2: Evolution of JAVA**

- 2.1 Know the history of Java
- 2.2 Requirements and Environment(JDK)
- 2.3 Comparison with other languages
- 2.4 Basic Features

#### **Section 3: Learn the Fundamentals of Java Programming**

- 3.1 Understanding Java Architecture
- 3.2 Understanding Java Virtual Machine(JVM)
- 3.3 Understanding and Installing Java Development Kit
- 3.4 Knowing the Program Structure
- 3.5 Data types , Variables and Operators
- 3.6 How to handle arrays in Java



3.7 Dealing with various Programming Constraints

## **Section 4: Leaping into java - The Logics and Techniques**

- 4.1 Managing Classes and Objects in Java
- 4.2 Managing Functions
- 4.3 Understanding Constructors
- 4.4 Dealing with Garbage Collection
- 4.5 Working with Inheritance in Java
- 4.6 Understanding Abstract Classes and Interfaces

## **Section 5: Packages - The Library Management**

- 5.1 Introduction to packages
- 5.2 Know How to implement a package
- 5.3 CLASSPATH Setting for Packages.
- 5.4 Making JAR Files for Library Packages
- 5.5 Import and Static Import
- 5.6 Knowing java.lang package
- 5.7 Knowing java.util package
- 5.8 Knowing java.io package (input/output programming)
- 5.9 Streams and the new I/O Capabilities
- 5.10 Understanding Streams
- 5.11 The Classes for Input and Output

## **Section 6: Multithreaded Programming - The Inside Parallelism**

- 6.1 Basic concepts and needs of multi-threading
- 6.2 Life Cycle of a Thread
- 6.3 How to create a thread
- 6.4 Handling Thread Priorities
- 6.5 Enforcing Thread Synchronization
- 6.6 Maintaining Interthread Communication
- 6.7 Other thread functions



## **Section 7: Exception Handling - The Error Management**

- 7.1 The Idea behind Exception
- 7.2 Exceptions & Errors
- 7.3 Types of Exception
- 7.4 Control Flow In Exceptions
- 7.5 JVM reaction to Exceptions
- 7.6 Use of try, catch, finally, throw, throws in Exception Handling

## **Section 8: Applet Programming - The Web Component Development**

- 8.1 Applet Basics
- 8.2 Applet Architecture
- 8.3 Parameters to Applet
- 8.4 Embedding Applets in Web page
- 8.5 Creating Applet applications

## **Section 9: Event Handling - The Component's Response**

- 9.1 The Delegation Event Model
- 9.2 Event Classes
- 9.3 Event Listener Interfaces
- 9.4 Handling Various Events

## **Section 10: GUI Programming - The Easiness of Interaction**

- 10.1 Introduction to AWT
- 10.2 Know the Window Fundamentals
- 10.3 Working with Frame Windows
- 10.4 Working with Graphics
- 10.5 Using AWT Controls and Menus
- 10.6 Understanding Layout Managers



## **Section 11: JFC and Swing - A Higher Level of User Interaction**

- 11.1 Features of the Java Foundation Classes
- 11.2 Overview of Swing
- 11.3 Components and Containers
- 11.4 Swing Packages
- 11.5 Exploring Swing components
- 11.6 Generating Swing Application

## **Section 12: Database Connectivity using JDBC**

- 12.1 Understanding JDBC
- 12.2 Define the layers in JDBC architecture
- 12.3 Various types of JDBC drivers
- 12.4 Manipulating various SQL Queries
- 12.5 Manage transactions and perform batch updates in JDBC
- 12.6 Creating Database Connectivity Applications

## **WEB-SCRIPTING**

### **Section 1: HTML5- The Static Web Page Creation**

- 1.1 HTML5 Introduction
- 1.2 Structure
- 1.3 Elements
- 1.4 Semantics
- 1.5 Audio & Video
- 1.6 Section & Article
- 1.7 Canvas, Aside
- 1.8 Drag & Drop
- 1.9 Forms & Form Elements

### **Section 2: CSS 3 - The Presentation Semantics**

- 2.1 CSS Properties, Selectors, Style Declaration Types
- 2.2 Colors, Backgrounds, Text and Fonts
- 2.3 Images, Links, Tables and List
- 2.4 Borders, Padding, Margin
- 2.5 Cursor, Dimension, Scrollbars, Visibility and Positioning



- 2.6 Pseudo class & Elements, @Rules( import, font-face, charset)
- 2.7 Filters, Media Types, Printing and Layouts

### **Section 3: JavaScript - The Interpreted Programming Language**

- 3.1 Interpreted Programming Languages
- 3.2 Integrating JavaScript with HTML
- 3.3 Variables in JavaScript
- 3.4 Operators in JavaScript
- 3.5 Expressions in JavaScript
- 3.6 Arrays in JavaScript
- 3.7 Handling Loops & Decision structures
- 3.8 Executing Conditional statements
- 3.9 Working with Functions

### **Section 4: JQuery - Write Less Do More...**

- 4.1 Understanding jQuery
- 4.2 jQuery Selectors
- 4.3 Event Manipulation Methods
- 4.4 Sliding, Easing, Fading, Toggling
- 4.5 jQuery and AJAX calls
- 4.6 JSON

## **Advanced Java**

*\*\* (All modules of Core Java +...)*

### **Section 1: Web Application Development (Using Servlets)**

- 1.1 Introducing Web Concepts
- 1.2 Knowing Web Servers
- 1.3 Introduction to Servlet
- 1.4 Servlet Life Cycle
- 1.5 The Servlet API
- 1.6 Now the Session Management Techniques
- 1.7 Managing Inter Servlet Communication



1.8 Servlet Filters

## **Section 2: JSP Web Application Development**

2.1 Introducing JSP

2.2 Structure of JSP Programming

2.3 Knowing Scripting Elements

2.4 Knowing JSP Directives

2.5 Developing a JSP Application

2.6 Create robust web applications using session management and database integration

## **Section 3: XML - The Data Carriers**

3.1 Knowing XML

3.2 Understanding XML Structure

3.3 XML Document Type Definitions(DTD)

3.4 XML Schemas and Parsers

3.5 XML Based API's

3.6 Application Development using XML and DTD

## **Section 4: Business Component Development with JavaBeans Technology**

4.1 Basic Concepts

4.2 Manifest file and JAR file

4.3 Developing a JavaBean

4.4 Implementing JavaBeans

## **Section 5: Networking - Managing the Distributed System**

5.1 Networking Basics and Concepts

5.2 Various Networking Protocol Awareness(TCP/IP, UDP)

5.3 Networking Classes and Interfaces

5.4 Knowing InetAddress and URL

5.5 Datagram and Socket Programming

5.6 An Application Development



## **Section 6: Remote Method Invocation**

- 6.1 Understanding RMI
- 6.2 The RMI system architecture in detail.
- 6.3 What are Stubs and Skeletons
- 6.4 Understanding RMI Packages
- 6.5 Creating an RMI application

## **J2EE**

*\*\* (All modules of Core Java and Advanced Java + ...)*

## **Section 1: An Overview of J2EE**

- 1.1 Introducing J2EE concepts
- 1.2 Understanding the 3- Tier Scenario
- 1.3 Working with Model-View-Controller
- 1.4 Introducing Application Servers

## **Section 2: Java Mail API - Building Mail Applications**

- 2.1 Understanding the protocols for JavaMail
- 2.2 Knowing the JavaMail Architecture
- 2.3 Working with JavaMail API

## **Section 3: Java Messaging Service - Building Message Applications**

- 3.1 Understanding JMS Architecture
- 3.2 Understanding Messaging Models
- 3.3 Understanding JMS Components
- 3.4 JMS API Programming Model & Examples
- 3.5 Introducing Message Driven Beans

## **Section 4: Web Services - Sharing the Web**



- 4.1 Defining Web Services
- 4.2 Technologies behind Web Servers
  - SOAP
  - WSDL
  - UDDI
- 4.3 J2EE Web Services

## **Section 5: Enterprise Java Beans - The Backend Business Code**

- 5.1 Learn EJB Component Technology
- 5.2 Understand EJB Architecture
- 5.3 Explaining Session Beans
- 5.4 Handling Entity Beans
- 5.5 Understand CMP & BMP
- 5.6 How to use Message Driven Beans

## **Section 6: More J2EE Techniques**

- 6.1 Examining JNDI and Directory Services
- 6.2 Java Transactions