SE704J - *Java SE7 Fundamentals*

DURATION: 5 Days; Instructor-led

WHAT YOU WILL LEARN

This course introduces students to programming using the Java language. It explains the concepts of programming using the Java technology.

After completing this course, students will be able to:

- Obtain basic programming techniques in Java SE7
- Write Java programs that reuse objects and their attributes.
- Control program flow by writing code to respond to specific situations and produce appropriate results.
- Work with Java class libraries to instantiate objects from Java classes.
- Understand object-oriented concepts in Java
- Handle abnormal situation in Java
- Debug Java Program

AUDIENCE

This course is aimed at beginners to programming that wish to learn the Java language. From technical writers and managers to administrators with a non-technical and non-programming background.

The course is also of benefit to those wishing to begin their study towards the Oracle Certified Java Associate Exam (OCJA), being aimed at those that wish to begin learning Java practically and at a steady pace.

PREREQUISITES

Familiarization with programming concepts is useful but is not mandatory.

The course materials, lectures, and lab exercises are in English. To benefit fully from the instruction, students need an understanding of the English language.

Development Tools

OS: MS Windows platform with JDK 7
IDE: NetBeans/Eclipse

METHODOLOGY

This program will be conducted with interactive lectures, PowerPoint presentation, discussions and practical exercise

COURSE OUTLINES

Module 1 - Programming in Java

- Introduction to the **I**ntegrated **D**evelopment **E**nvironment
- Create a Simple Java Program

Module 2 – Controlling Program Flow

- Write If Statements
- Write a Switch Statement
- Write a For Loop
- Write While and Do...While Loops

Module 3 – The Language fundamentals

- Native Data Types
- Variables
- Constants
- Access Modifiers
- Operators
- Methods and Overloading
- Understanding Packages

Module 4 – Advanced Data Types

- Homogeneous Complex: Array
- Multi-Dimensional Arrays
- Jagged Array
- Array List
- Generic List
- Hash Table
- String and StringBuilder
- Heterogeneous Complex with Class

Module 5 – Basic Object-Oriented Programming

- What is Objects?
- Abstraction
- Attributes
- Behavior, Operations & Methods
- Relationship
- Information Hiding, Classification & Encapsulation
- Concepts & Classes
- Objects Instantiation
- Constructors and Constructors chaining

Module 6 – Advanced Object-Oriented Programming

- Generalization
- Inheritance
- Specialization & Polymorphism
- Abstract Method and Abstract Class
- Interfaces

Module 7 – The GC

- What is GC?
- Why GC is important?
- Precaution when dealing with GC based systems
- Claimable objects: Garbage and Island
- Tips in handling resources
- Explicitly call GC
- Handling object destructor

Module 8 – Errors & Exception Handling

- Compilation Errors
- Runtime Errors
- Logical Errors
- How to debug Java Applications
- What is Exception handling?
- Try-Catch-Finally
- Multiple Catch Blocks
- Custom Exception
- Re-throw technique
- Checked Vs. Unchecked Exceptions
- Assertions

Module 9 – The Java Application

- Code Organization
- Resource bundles and the Locale class
- Using JDBC