

## Basic Java Programming

Five days, instructor-led

This course focuses on the fundamentals of the Java language, object oriented development and the structure of Java applets and applications. It covers Java Platform 2 up to version 5.0. Introduces students to problem solving by means of object-oriented design and implementation. Emphasis is on problem analysis and solution design, documentation and implementation. Students use commercial software libraries, and create software mini project. Programming exercises are carried out in the module after each topic

### Audience

This course is for organizations and individuals who are looking for ways to develop Java applications that can run across multiple platforms seamlessly and reliably, create robust, object-oriented applications using Java technology. For developers responsible for writing object-oriented software programs in Java.

### At Course Completion

After completing this course, students will be able to:

- To learn the fundamentals of Java programming and how to use Java to write applications
- Explain Java architecture and write, compile, and execute a Java program using different text editors like Notepad++, Creator, Eclipse and NetBeans IDE.
- Learn and understand principles of Object-Oriented Programming (OOP) design and apply them in Java Programming
- Learn Inheritance, Encapsulation, Abstraction & Polymorphism in Java
- Learn Java Classes, Objects & Interfaces
- Get extensive hands-on experience with Java programming and relate each practice exercise on the real world scenario
- Learn to use utility classes and packages involving I/O, math, and strings
- Create simple to complex GUI applications with AWT and Swing
- Understand and develop the concept of a serialized object
- On-line resources for keeping abreast of Java developments

### Prerequisites

Before attending this course, students must have:

- Experienced and completed a beginning course in any structured programming languages
- Some understanding of software development
- Understanding of OOP is helpful, but not required.

### Course Outline

#### Arrays

Pre-Assessment Questions

What Is an Array?

Initializing an Array

Objects

Using an Array

Passing an Array to a Method

Garbage Collection

Command Line Parameters

Hashing

#### Interfaces and Abstract Classes

What Is an Interface?

Polymorphism

What Is an Abstract Class?

#### Packages and Access Modifiers

Introduction to Packages and Access Modifiers

Packages

Access Modifiers

Java 2 Application Programming Interface

## **Classes and Objects**

Object-Oriented Programming

### **What Is an Object?**

Instance and Class Members

Abstraction

Object References

## **Inheritance**

What Is Inheritance?

Overriding Methods

Overridden Methods and Variables

## **Constructors**

What Is a Constructor?

Using Constructors

The Keyword this

Constructor Process

Constructors and Callbacks

String and String Buffer

Wrapper Classes

Encapsulation

## **Swing Components**

What Is the AWT?

What Is Swing?

Basic Swing Components

Swing Containers

JavaBeans

## **Layout Managers**

What Is a Layout Manager?

Flow Layout

Grid Layout

Border Layout

Box Layout

Combining Layouts

## **Graphics in Java**

Graphics Class

Color Class

Font Class