

**Course Name** : JAVA PROGRAMMING FUNDAMENTALS  
**Duration** : 2 Days (Physical Classroom / Virtual Live Instructor)  
**Skill Level** : Beginner

### **COURSE DESCRIPTION:**

This 2-day Java Programming course introduces participants to programming using one of the world's most widely used enterprise languages. The course focuses on building practical problem-solving skills rather than memorizing syntax.

Participants will learn how to write, run, and debug Java programs while developing real-world mini applications such as business calculators, menu-driven systems, and simple record management tools. Key concepts including variables, decision-making, loops, methods, arrays, and basic object-oriented programming will be taught through guided hands-on exercises.

By the end of the training, participants will be able to design small working programs independently and understand how Java is used in real business systems, forming a strong foundation for further learning in backend development, Android development, or enterprise applications.

### **WHAT WILL YOU LEARN?**

By the end of this course, participants will be able to create structured Java programs, accept and validate user input, apply business logic using conditions and loops, organize code using methods, and build simple object-based systems. Participants will also gain confidence reading and troubleshooting errors.

### **PREREQUISITE:**

Basic computer knowledge. No prior programming experience required.

### **METHODOLOGY:**

Interactive explanations, live coding demonstrations, guided hands-on labs, practical mini challenges, and a final mini project.

### **JOB SCOPE:**

Upon completion of this course, candidates may pursue the following career paths:

- Junior Software Developer
- Backend Developer Trainee
- QA Automation Beginner
- Technical Support / System Support (Automation Tasks)
- Students preparing for IT internships

## MODULE 1: INTRODUCTION TO PROGRAMMING & JAVA

- What is programming and how software works
- Where Java is used in real companies
- Installing JDK & IDE setup
- Writing and running the first Java program
- Understanding compile vs run

**Hands-on Lab:** Modify and run multiple versions of your first program

---

## MODULE 2: VARIABLES, DATA TYPES & USER INPUT

- Numbers, text and boolean values
- Storing and updating data
- Using Scanner for input
- Output formatting

**Hands-on Lab:** Build a Unit Converter (temperature & currency)

---

## MODULE 3: DECISION MAKING (CONDITIONS)

- if, else, else-if logic
- Comparison & logical operators
- Input validation techniques

**Hands-on Lab:** Login validation & grading system

---

## MODULE 4: LOOPS & REPETITIVE TASKS

- while, do-while, for loops
- When to use each loop
- Preventing infinite loops

**Hands-on Lab:** Menu-driven program (ATM simulation)

---

## MODULE 5: METHODS (WRITING REUSABLE CODE)

- Why methods matter in real programs
- Parameters & return values
- Breaking big problems into smaller tasks

**Hands-on Lab:** Modular business calculator

---

## **MODULE 6: ARRAYS & DATA PROCESSING**

- Storing multiple values
- Searching and summarizing data
- Basic statistics (max, min, average)

**Hands-on Lab:** Student score analyzer

---

## **MODULE 7: INTRODUCTION TO OBJECT-ORIENTED PROGRAMMING**

- What are Classes and Objects (real-world analogy)
- Fields and methods
- Creating multiple objects

**Hands-on Lab:** Create a Product class

---

## **MODULE 8: BUILDING A SIMPLE SYSTEM**

- Combining arrays + objects
- Structuring a real program

**Hands-on Lab:** Product inventory tracker

---

## **MODULE 9: DEBUGGING & ERROR HANDLING**

- Reading common Java errors
  - Fixing logical mistakes
  - Debugging techniques beginners must know
-

## MODULE 10: FINAL MINI PROJECT

### Build a Console-Based Employee Management System

Features:

- Add employee
- View employee list
- Search employee
- Salary calculation

(Guided development + independent coding)

---

## MODULE 11: REVIEW & NEXT LEARNING PATH

- How Java is used in web & Android
- Next skills: SQL, Spring Boot, APIs
- Career roadmap