

## **Core Java Complete Course Outline (Approx. 30-35 Lectures × 45 min)**

### **Introduction and Basics (Lectures 1-5)**

- Introduction to Java, History, Features, JDK, JRE, JVM
- Setting up Environment, Hello World Program
- Variables, Data Types, Operators, Control Statements
- Arrays and Strings Basics
- Methods and Recursion

### **Object-Oriented Programming Concepts (Lectures 6-12)**

- Classes and Objects, Constructors, this keyword
- Inheritance, Method Overriding
- Polymorphism, Encapsulation, Abstraction
- Access Modifiers, Static Keywords
- Packages and Interfaces

### **Exception Handling and Multithreading (Lectures 13-17)**

- Exception Hierarchy, Try-Catch, Finally, Throw, Throws
- Custom Exceptions
- Multithreading Basics, Thread Life Cycle
- Synchronization and Inter-thread Communication

### **Java Collections Framework (Lectures 18-21)**

- List, Set, Map Interfaces and Implementations
- Iterator, Enumeration, Enhanced For Loop
- Comparable and Comparator Interfaces

### **File Handling and I/O Streams (Lectures 22-24)**

- File Class, FileReader, FileWriter
- Buffered Streams, Data Streams, Serialization

### **Java APIs and Miscellaneous Topics (Lectures 25-28)**

- String Pooling, StringBuilder, Wrapper Classes
- Inner Classes and Anonymous Classes
- Java 8+ Features: Lambda Expressions, Streams API
- Java Date and Time API

### **JDBC and Database Connectivity (Lectures 29-31)**

- JDBC Architecture, Connections, Statements
- Executing SQL Queries, Prepared Statements
- Transactions and Batch Processing

### **Design Patterns and Best Practices (Lectures 32-35)**

- Singleton, Factory, Observer Patterns
- Code Optimization and Clean Coding Principles