



# **SELENIUM WITH JAVA AUTOMATION COURSE CURRICULUM**



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## SELENIUM WITH JAVA AUTOMATION

### Module 1: Selenium Introduction

- Introduction to Automation Testing
- Importance and Use Cases of Automation
- Overview of Selenium
- Selenium Suite Components:
  - Selenium IDE
  - Selenium WebDriver
  - Selenium RC (Deprecated but referenced)
  - Selenium Grid
- Advantages and Limitations of Selenium
- Installing and Using Selenium IDE
- Using Selenium Builder for Record & Playback
- Locators in Selenium:
  - Types of Locators (ID, Name, XPath, CSS, etc.)
  - Identifying Locators Manually
  - Tools for Locator Identification (FirePath, ChroPath, DevTools)

### Module 2: Core Java for Selenium

- Introduction to Java Programming
- Java Setup and Environment Configuration
- Java Basics:
  - Syntax, Data Types, Variables, Operators
  - Loops and Control Statements (if, for, while, switch)
- Java OOP Concepts:
  - Classes & Objects
  - Inheritance, Polymorphism, Overriding
  - Abstraction, Encapsulation
  - Interfaces and Packages
- Advanced Java Topics:
  - Exception Handling
  - Inner Classes
  - File Handling (File I/O)
  - Date & Time
  - Regular Expressions
- Java Collections & Generics
  - Lists, Sets, Maps, Iterators
  - Collections Utility Methods
- Java Arrays & Strings
- Data Structures and Algorithms (Basic level)

### **Module 3: Selenium WebDriver (Selenium 2.0)**

- Overview of WebDriver Architecture
- Installing WebDriver with Java
- Handling Standard Controls:
  - Textboxes, Checkboxes, Radio Buttons
  - Drop-downs, Web Tables
- Working with Browser Windows & Frames
- Handling JavaScript Alerts, Popups, and Modal Panels
- User Interactions:
  - Mouse Hover
  - Double Click, Right Click
  - Drag and Drop using Actions Class
- WebDriver Methods for WebElements
- Taking Screenshots with WebDriver
- Synchronization in Selenium:
  - Implicit Wait
  - Explicit Wait
  - Fluent Wait
- Integrating JavaScript with WebDriver

### **Module 4: TestNG Framework**

- Introduction to TestNG
- Installing and Configuring TestNG in Eclipse
- TestNG Annotations (@Test, @BeforeClass, @AfterMethod, etc.)
- Running Multiple Tests and Prioritization
- Parameterization with TestNG
- Assertions and Reporting
- Generating Reports using ReportNG & XSLT Plugins
- Integration with Selenium WebDriver

### **Module 5: Selenium Grid & Parallel Execution**

- Introduction to Selenium Grid
- Setting Up Hub and Nodes
- Executing Tests in Parallel across Browsers
- Integrating Selenium Grid with TestNG
- Remote WebDriver Setup

## Module 6: Automation Frameworks

- Types of Frameworks in Automation:
  - Keyword-Driven Framework
  - Data-Driven Framework
  - Function-Driven Framework
  - Hybrid Framework
- Page Object Model (POM)
- Page Factory Pattern
- Reading/Writing Data from:
  - Excel (Apache POI)
  - Notepad
  - SQL Server using JDBC
- Framework Implementation Best Practices
- Building Reusable Test Components
- Walkthrough of Hybrid Framework
- Assignment: Build and Run Test Scenarios Using Hybrid Framework
- Custom Report Generation in Framework

## Module 7: Continuous Integration Tools

### Jenkins

- Introduction to Jenkins CI/CD Tool
- Installing and Setting up Jenkins
- Managing Jenkins Plugins
- Creating and Scheduling Selenium Job Execution in Jenkins

### Maven

- Introduction to Apache Maven
- Creating Maven Projects in Eclipse
- Managing Selenium & TestNG Dependencies with POM.xml

### ANT

- Introduction to Apache ANT
- Using ANT Scripts for Automation Projects

# Thank you



**Thank You for Going Through Selenium with Java Automation Curriculum**  
**We hope this guide has provided a clear and structured learning path to**  
**strengthen your skills in Selenium with Java Automation.**

## ✦ NEXT STEPS

- Start practicing with real-world use cases and hands-on exercises
- Build personal or client-based projects for your portfolio
- Keep exploring updates and best practices in the industry
- Join discussions and stay connected with the community

**Need Help or Guidance?**

**Feel free to contact our course support team:**  
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