**Selenium Automation Course Syllabus**

**Module 1: Introduction to Automation Testing**

* What is Automation Testing?
* Manual Testing vs Automation Testing
* Benefits of Automation
* Introduction to Selenium
* Selenium Suite: IDE, WebDriver, Grid

**Module 2: Java Basics for Selenium**

* Installing Java & Eclipse IDE
* Variables, Data Types, Operators
* Control Statements (if, switch, loops)
* Object-Oriented Programming Concepts
  + Classes & Objects
  + Inheritance
  + Polymorphism
  + Encapsulation
* Collections (List, Set, Map)
* Exception Handling
* File Handling

**Module 3: Selenium WebDriver**

* Introduction to WebDriver Architecture
* Setting up Selenium WebDriver with Java
* Locators in Selenium (id, name, xpath, cssSelector, etc.)
* Handling Web Elements:
  + Text Boxes, Buttons, Links, Checkboxes, Radio Buttons
* Handling Alerts, Frames, Windows
* Synchronization (Implicit, Explicit, Fluent Waits)
* Actions Class (Mouse & Keyboard Actions)
* Taking Screenshots

**Module 4: TestNG Framework**

* Introduction to TestNG
* TestNG Annotations
* Grouping & Prioritizing Tests
* Parameterization
* TestNG Reports
* Parallel Execution

**Module 5: Automation Framework Design**

* Introduction to Frameworks
* Types: Data-Driven, Keyword-Driven, Hybrid, Page Object Model (POM)
* Creating a Page Object Model Framework
* Utility Classes and Reusable Functions
* Project Structure and Best Practices

**Module 6: Data-Driven Testing**

* Using Excel Files with Apache POI
* Reading/Writing Data
* Parameterizing Tests with External Data

**Module 7: Version Control with Git & GitHub**

* Introduction to Git & GitHub
* Git Commands (clone, commit, push, pull)
* Creating and Managing Repositories
* Collaboration with Branching

**Module 8: Build Tools – Maven**

* Introduction to Maven
* Project Object Model (POM.xml)
* Managing Dependencies
* Building and Running Tests with Maven

**Module 9: Continuous Integration with Jenkins**

* Installing and Configuring Jenkins
* Creating and Scheduling Jobs
* Integrating Selenium Tests with Jenkins
* Test Reports in Jenkins

**Module 10: Selenium Grid & Cross-Browser Testing**

* Introduction to Selenium Grid
* Hub and Node Configuration
* Running Tests on Multiple Browsers and Systems
* Parallel Test Execution

**Module 11: Real-Time Project**

* Framework Implementation from Scratch
* Writing Test Cases for a Sample Web Application
* Bug Reporting and Documentation
* Mock Interviews and Resume Preparation