

QA Automation Testing — Course Curriculum

Become a job-ready QA Automation Engineer / SDET with Selenium, Java & CI/CD

Total: 63 Hours

Free Foundation: 15 Hours

Paid Job-Ready: 48 Hours

100% Online · Live Instructor-Led

About this program: A 63-hour, fully online, job-ready course that takes you from testing fundamentals to a complete, CI/CD-integrated automation framework. You start with 15 free foundation hours (software testing fundamentals, Java for testers, SQL & database testing, Git) and continue into a 48-hour paid program covering Advanced Java for automation, Selenium WebDriver, TestNG, automation frameworks (Page Object Model, data-driven, hybrid), API testing with Postman & Rest Assured, BDD with Cucumber, and CI/CD with Jenkins & Docker — finishing with an end-to-end automation capstone, a portfolio, and full interview preparation.

Free Foundation — 15 Hours

Start learning for free. Build your core testing, Java, SQL, and Git foundations before advancing to the job-ready program.

Module 1: Software Testing & QA Fundamentals

Estimated Time: 5 Hours

Learning Objectives

- Understand how quality is built into software
- Write clear test cases and report defects effectively

Topics

- SDLC, STLC, and testing types & levels
- Test cases, test scenarios, and test data
- Defect life cycle and bug reporting

Hands-on

- Write test cases and log defects for a sample application

Module 2: Programming Foundations with Java for Testers

Estimated Time: 5 Hours

Learning Objectives

- Write and run Java programs confidently
- Build the coding base needed for Selenium automation

Topics

- JDK setup, syntax, variables, and data types
- Conditionals, loops, methods, and arrays
- Strings, collections, and exception handling basics

Hands-on

- Build small Java programs that model test logic

Module 3: SQL & Database Testing Basics

Estimated Time: 3 Hours

Learning Objectives

- Validate application data with SQL
- Perform back-end and database testing

Topics

- SELECT, WHERE, GROUP BY, and ORDER BY
- Joins, keys, and relationships
- Data validation and back-end verification techniques

Hands-on

- Write SQL queries to validate test data in a database

Module 4: Version Control with Git & GitHub

Estimated Time: 2 Hours

Learning Objectives

- Track automation code and configs with Git
- Collaborate and showcase your work on GitHub

Topics

- Repositories, commits, and branches
- Merging, pull requests, and conflict resolution
- Building a professional QA/automation GitHub profile

Hands-on

- Push your first test scripts to GitHub

Paid Job-Ready Program — 45–50 Hours (48 Hours)

Go from foundations to fully employable: Selenium, TestNG, frameworks, API testing, BDD, and CI/CD — then build and run a complete automation framework.

Module 5: Advanced Java & OOP for Test Automation

Estimated Time: 5 Hours

Learning Objectives

- Write clean, object-oriented automation code
- Apply OOP principles to reusable test frameworks

Topics

- Classes, inheritance, interfaces, and polymorphism
- Collections, Generics, and exception handling
- File handling, OOP design, and reusable utilities

Hands-on

- Build reusable, object-oriented test utility classes

Module 6: Selenium WebDriver Fundamentals

Estimated Time: 6 Hours

Learning Objectives

- Automate browser actions with Selenium WebDriver
- Build and run your first automated web tests

Topics

- Selenium architecture and WebDriver setup
- Browser commands, navigation, and interactions
- Handling forms, clicks, and text input

Hands-on

- Automate a real web workflow end to end with Selenium

Module 7: Locators, Waits & Handling Web Elements

Estimated Time: 5 Hours

Learning Objectives

- Locate and interact with any web element reliably
- Handle dynamic, timing-sensitive web pages

Topics

- Locators: ID, CSS selectors, and XPath
- Implicit, explicit, and fluent waits
- Alerts, frames, dropdowns, and Actions class

Hands-on

- Automate complex, dynamic web elements robustly

Module 8: TestNG Framework & Assertions

Estimated Time: 4 Hours

Learning Objectives

- Structure and manage tests with TestNG
- Add assertions, grouping, and reporting

Topics

- TestNG annotations, test suites, and XML config
- Assertions, priorities, groups, and dependencies
- Parallel execution and HTML reports

Hands-on

- Build a structured TestNG suite with reporting

Module 9: Automation Frameworks (POM, Data-Driven & Hybrid)**Estimated Time:** 6 Hours**Learning Objectives**

- Design scalable, maintainable automation frameworks
- Separate tests, data, and page logic cleanly

Topics

- Page Object Model (POM) and Page Factory
- Data-driven testing with Apache POI / Excel
- Hybrid frameworks, utilities, logging, and reporting

Hands-on

- Build a complete Page Object Model automation framework

Module 10: API Testing with Postman & Rest Assured**Estimated Time:** 5 Hours**Learning Objectives**

- Test REST APIs manually and with automation
- Validate responses, status codes, and schemas

Topics

- REST, HTTP methods, and status codes
- API testing with Postman and collections
- Automated API tests with Rest Assured

Hands-on

- Build an automated API test suite with Rest Assured

Module 11: BDD with Cucumber & Maven**Estimated Time:** 4 Hours**Learning Objectives**

- Write readable, behavior-driven test scenarios
- Manage automation builds and dependencies with Maven

Topics

- BDD concepts and Gherkin (Given-When-Then)
- Cucumber feature files, step definitions, and runners
- Maven project structure and dependency management

Hands-on

- Build a BDD Cucumber test suite driven by Maven

Module 12: CI/CD with Jenkins, Git & Docker

Estimated Time: 5 Hours

Learning Objectives

- Run automated tests continuously in a pipeline
- Containerize and schedule test execution

Topics

- Continuous integration concepts and Git workflows
- Jenkins jobs, pipelines, and scheduling test runs
- Running tests in Docker and Selenium Grid overview

Hands-on

- Run your automation suite automatically via Jenkins

Module 13: Modern Tools - Playwright / Cypress & Appium Overview

Estimated Time: 3 Hours

Learning Objectives

- Explore modern web and mobile automation tools
- Choose the right tool for the testing job

Topics

- Playwright and Cypress for modern web automation
- Mobile automation with Appium (overview)
- Tool comparison and when to use each

Hands-on

- Write a sample test in Playwright or Cypress

Module 14: Capstone Automation Project, Portfolio & Job Readiness

Estimated Time: 5 Hours

Learning Objectives

- Ship a complete, portfolio-ready automation framework
- Prepare for the QA automation job search

Topics

- End-to-end capstone: framework, API tests, CI/CD run
- Portfolio, GitHub, and resume optimization
- QA automation, Selenium, and SDET interview prep

Hands-on

- Build and present an end-to-end automation framework; mock interviews and resume review

Free Foundation: 15 Hours | **Paid Job-Ready Program:** 48 Hours | **Total Course:** 63 Hours (60–65)

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