

Diploma in Software Testing (6 Months)

Duration: 6 Months (~240 Hours)

Mode: Live Online / Classroom

Designation after completion: Full-Stack QA Engineer / Software Test Engineer

Tools & Technologies: JIRA, Bugzilla, TestLink, Selenium WebDriver, Java/Python, TestNG, Maven, GitHub, Jenkins, Cucumber (BDD), Postman, RestAssured, JMeter, Swagger

Certifications prepared: ISTQB Foundation, Certified Selenium Tester, Postman API Fundamentals, JMeter Performance Testing

Course Syllabus (24 Weeks)

Week 1 – Introduction to Testing

- SDLC vs STLC
- QA vs QC vs Testing
- Principles of Testing
- Assignment → Compare Agile vs Waterfall testing

Week 2 – Testing Fundamentals

- Verification vs Validation
- White-box vs Black-box testing
- Test Levels: Unit, Integration, System, UAT
- Assignment → Identify testing levels in a sample HR system

Week 3 – Test Documentation

- Test Plan & Strategy (contents, examples)
- Entry & Exit Criteria
- Traceability Matrix
- Assignment → Create a test plan for a banking login app

Week 4 – Test Case Design

- Equivalence Partitioning, Boundary Value Analysis
- Positive & Negative test scenarios
- Test Data preparation
- Assignment → Write test cases for Shopping Cart
- Mock Interview 1

Week 5 – Functional Testing

- Smoke, Sanity, Regression, Re-testing
- Exploratory & Ad-hoc Testing
- Assignment → Perform regression test cycle on a calculator

Week 6 – Defect Management

- Defect Life Cycle (New → Closed)
- Severity vs Priority
- Defect reporting using JIRA / Bugzilla
- Assignment → Log 5 sample bugs in JIRA

Week 7 – Agile Testing

- Scrum ceremonies & QA role in Agile
- Writing test cases for User Stories
- Pair testing in Agile
- Assignment → Create Agile test cases for HR system

Week 8 – Specialized Testing

- Compatibility, Usability, Accessibility Testing
- UAT process & checklists
- Assignment → UAT checklist for a travel booking system
- Mock Interview 2

Week 9 – Selenium Basics

- Introduction to Automation
- Selenium WebDriver setup (Java/Python)
- Locators (ID, Name, XPath, CSS)
- Assignment → Automate Google Search

Week 10 – WebDriver Commands

- Handling Buttons, Links, Forms
- Alerts, Frames, Windows
- Assignment → Automate registration form

Week 11 – Framework Setup

- TestNG setup & Annotations
- Assertions, Test Suites
- Assignment → Create TestNG suite for login
- Mock Interview 3

Week 12 – Data-Driven Testing

- Page Object Model (POM)
- Data-driven Testing using Excel/CSV
- Parameterization in TestNG
- Assignment → Automate login for multiple users

Week 13 – Synchronization & Advanced Selenium

- Implicit vs Explicit Wait
- Handling dynamic elements with JavaScriptExecutor
- Screenshots in Selenium
- Assignment → Automate shopping cart checkout

Week 14 – Cross-Browser Testing

- Running tests on Chrome, Firefox, Edge
- Headless Testing
- Assignment → Run same tests in 3 browsers

Week 15 – CI/CD Integration

- Jenkins setup for automation jobs
- Running Selenium tests via Maven + Jenkins
- Assignment → Integrate Selenium suite into Jenkins pipeline

Week 16 – BDD & Parallel Execution

- Cucumber: Feature files, Step Definitions
- Parallel Execution using Selenium Grid
- Assignment → Automate login with BDD + run in Grid
- Mock Interview 4

Week 17 – API Testing Basics

- Introduction to APIs, REST vs SOAP
- Swagger / OpenAPI exploration
- Assignment → Test sample API with Swagger

Week 18 – Postman Basics

- Collections, Variables, CRUD operations
- Assignment → Build Postman collection for User API

Week 19 – Postman Advanced

- Writing test scripts (JS)
- Data-driven Testing in Postman
- Collection Runner & Monitors
- Assignment → Automate User API tests with datasets

Week 20 – RestAssured

- Setup with Java + Maven
- GET, POST, PUT, DELETE requests
- JSON Schema validation

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- Assignment → Automate e-commerce API
 - Mock Interview 5

Week 21 – API Security & Authentication

- Basic Auth, OAuth, JWT Tokens
- Handling authentication in Postman & RestAssured
- Assignment → Automate secured API with token

Week 22 – JMeter Basics

- JMeter installation & interface
- Thread Groups, Samplers, Listeners
- Recording test scenarios
- Assignment → Record login scenario with JMeter

Week 23 – JMeter Advanced

- Parameterization & Correlation
- Pre- & Post-processors
- Timers, Assertions
- Jenkins Integration & Reporting
- Assignment → Run load test with 100 users
- Mock Interview 6

Week 24 – Performance Analysis & Capstone

- Result analysis, Bottleneck identification
- Monitoring server performance (CPU, memory)
- Capstone Project: End-to-End API + Performance Testing for an e-commerce site