



SQA & Automation Engineering Professional Program

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3-Month Comprehensive Curriculum

Month 1: Manual Testing, Agile & API Fundamentals

Goal: Build a solid foundation in the Software Testing Life Cycle (STLC)

Week 1: Fundamentals of SQA & Requirement Mapping

- **SQA Concepts:** Understanding the STLC, Bug Life Cycle, and Severity vs. Priority.
- **Mind Mapping with XMind:** Using XMind to visualize test scenarios and map complex application logic.
- **Test Case Writing:** Drafting professional test cases with clear preconditions, test steps, and expected results.
- **Report Writing:** Creating detailed Defect Reports and Test Summary Reports (TSR).

Week 2: Agile Methodologies & Project Management

- **Agile & Scrum:** Deep dive into Sprints, Backlogs, Retrospectives, and User Stories.
- **Jira Mastery:** Using Jira for task tracking, reporting bugs, and managing Kanban/Scrum boards.
- **Database Testing:** Writing SQL queries to validate backend data integrity and transactions.

Week 3: API Manual Testing

- **Postman Fundamentals:** Sending and validating GET, POST, PUT, and DELETE requests.
- **Testing with Postman:** Validating status codes, headers, and JSON body responses.
- **Environment Management:** Handling global and environment-specific variables in Postman.



Week 4: Mobile Manual Testing

- **Mobile Specific Scenarios:** Testing interruptions (calls, notifications), battery drain, and gestures.
- **Device Testing:** Validating across different screen sizes, OS versions (iOS/Android), and network conditions.

[Project 1: Enterprise Manual Audit]

- *Scope:* Create a complete Mind Map, Test Plan, and Bug Report for a live application using Jira and XMind.

Month 2: Web Automation & Performance Engineering

Goal: Transition from manual processes to automated scripts using Java and modern frameworks.

Week 5: Java Basics for Automation

- **Java Foundations:** Data types, loops, and conditional statements.
- **Object-Oriented Programming (OOP):** Implementing Inheritance, Polymorphism, and Encapsulation in test scripts.
- **Exception Handling:** Managing runtime errors to ensure stable automation execution.

Week 6: Web Automation with Selenium

- **Selenium WebDriver:** Mastering Locators (XPath, CSS Selectors) and handling dynamic web elements.
- **Framework Design:** Introduction to the Page Object Model (POM) for clean, maintainable code.

Week 7: Playwright: Fast & Reliable

- **Modern Automation:** Setting up Playwright, auto-waiting features, and trace viewing.
- **End-to-End (E2E) Testing:** Writing robust scripts that cover complex user journeys across multiple pages.



Week 8: Performance & Load Testing with JMeter

- **JMeter Basics:** Creating Thread Groups, Samplers, and Listeners.
- **Load Testing:** Simulating high concurrent user traffic to identify system bottlenecks.
- **Analysis:** Interpreting latency, throughput, and error rate reports.

[Project 2: Automated Regression Suite]

- *Scope:* Build a Selenium or Playwright framework that automates the regression flow of a web application.

Month 3: Advanced Automation, CI/CD & Career Readiness

Goal: Master mobile automation, BDD, and integrate tests into the DevOps pipeline.

Week 9: API Automation & BDD

- **Newman:** Running Postman collections via the Command Line Interface (CLI).
- **Behavior-Driven Development (BDD):** Writing Gherkin scripts (Given, When, Then) using **Cucumber**.
- **Integration:** Connecting Cucumber with Selenium/Playwright for readable, stakeholder-friendly reports.

Week 10: Mobile Application Testing (Automation)

- **Appium:** Setting up Appium Server and inspecting mobile elements for Android and iOS.
- **TestProject:** Utilizing cloud-based tools for cross-platform mobile validation.

Week 11: AI in Testing & CI/CD Pipelines

- **Software Testing with AI Tools:** Utilizing AI for self-healing scripts and automated test data generation.
- **Git & Jenkins:** Creating CI/CD pipelines to trigger automated tests on every code push or deployment.



Week 12: Career Readiness & Technical Review

- **CV Writing & Review:** Crafting a technical CV that highlights automation tools, frameworks, and projects.
- **Mock Interviews:** Rigorous technical and behavioral interview simulations.
- **Final Review:** Comprehensive recap of Java, Selenium, and API automation concepts.

[Project 3: The Full-Stack QA Pipeline]

- *Scope:* Develop a BDD framework for a mobile app, integrate it with Jenkins, and generate a performance report using JMeter.