**Software Testing**

**Month 1: Fundamentals of Software Testing**

Week 1: Introduction to Software Testing

* Definition and importance of software testing
* Role of testing in the software development lifecycle
* Types of testing: manual vs. automated

Week 2-3: Software Development Lifecycle (SDLC) and Testing Levels

* Understanding various SDLC models
* Different testing levels (unit, integration, system, acceptance)
* Introduction to V-model and Agile testing methodologies

Week 4-5: Manual Testing Techniques

* Test planning and strategy
* Test case design and execution
* Defect reporting and tracking

Week 6: Introduction to Test Automation

* Basics of test automation
* Popular test automation tools (e.g., Selenium, JUnit, TestNG)
* Setting up a basic automation environment

**Month 2: Advanced Testing Concepts and Specialized Testing**

Week 1-2: Automated Testing with Selenium

* Advanced features of Selenium
* Building and maintaining automation scripts
* Running automated tests in different browsers

Week 3-4: Performance Testing

* Introduction to performance testing
* Load testing, stress testing, and scalability testing
* Tools for performance testing (e.g., JMeter)

Week 5: Security Testing

* Basics of security testing
* Common security vulnerabilities
* Conducting security testing using tools (e.g., OWASP ZAP)

Week 6: Final Project and Emerging Trends

* Guided work on a testing project
* Presentations and feedback
* Emerging trends in software testing