



DTC – Software QA: Syllabus

Software QA: Syllabus

Total Credit: 40 Hrs.

Theory: 25 Hrs.

Lab: 15 Hrs.

COURSE OBJECTIVES

- To study fundamental concepts in Software Quality Assurance, including software testing objectives, process, criteria, strategies, and methods.
- To learn how to design test cases and test data, conduct testing operations, manage software problems and defects.
- To understand software test automation with practical examples.
- To learn how to perform security testing and performance testing in software.

THEORY

1. Session 1: Introduction to QA
 - Importance of QA, QA as a career
 - Difference between Project and Product
 - Difference between Quality Assurance and Quality Control
 - Manual and Automation testing
 - Roles and Responsibilities of Business Analyst, Developers, Architects, Project Managers, QA.
 - Test Team (QA Manager, QA Lead, QA Engineer, Release Engineer)
2. Session 2: Software Development Life Cycles (SDLC)
 - Software Development Life Cycle Stages
 - Agile Methodologies
 - Software Testing Life Cycles
 - Types of Testing
 - Test Platforms (Development, QC, UAT, Production)
 - Defects (Identification, Logging, Life Cycle, Priority)
3. Session 3: Quality Assurance phases.
 - Feature Requirement
 - Test Plan
 - Test Scenario
 - Test Cases
 - Test Data
 - Test Script
 - Test Result
4. Session 4: Automation Testing – Basics
 - Introduction to Automation Testing
 - What is Automation testing
 - Benefits of Automation Testing
 - Various Automation Test Tools
 - Tool selection criteria
 - Introduction to Selenium

5. Session 5: Automation Testing – Advanced
 - Automation Framework
 - Accessing Multi URL via Automation
 - Read input parameters from Excel
 - Importing Data from Web (Web Scraping)
 - Write Web data to Excel.

6. Session 6: Test Script, Database and SQL - Basics
 - Importance of SQL in Quality Assurance
 - Introduction to the database.
 - Database Verification and Validation
 - MySQL Database, Comparison with Popular Databases – Oracle, MS SQL Server, IBM DB2
 - Structured Query Language (SQL)
 - Data Definition Language (DDL)
 - Data Manipulation Language (DML)
 - Introduction to Tables, Rows, Columns
 - What are a Foreign Key, Primary Key and Unique Key?
 - What are DDL and DML, (DML) Select, Update, Delete and Insert Into statements
 - (DDL) Create, Alter, Drop statements.

7. Session 7: Performance Test - Basics
 - Performance testing and its importance in QA
 - Types of Performance Testing
 - Common Performance Problems
 - Performance Testing Process
 - Example Performance Test Cases
 - Performance Test Tools(HP Loadrunner, JMeter)
 - Session 8: Security Test- Basics
 - Security testing and its importance in QA
 - Types of Security Testing
 - Authentication and Authorization
 - Example Test Scenarios for Security Testing
 - Methodologies/ Approach / Techniques for Security Testing
 - SQL Injection and XSS (cross-site scripting)

LAB

- Test scenario preparation.
- Test case preparation.
- Test Data Preparation.
- Test Script Preparation (SQL)
- Browsing web via Automation.
- Data validation via Automation.
- Web scraping using selenium.
- Performance test using JMeter
- Performance test using HP LoadRunner