

Software Testing

1. Introduction to Software Testing

Topics Covered:

What is Software Testing & QA

Objectives, Role of testing, Importance

Errors, Bugs, Defects, Failures definitions

Difference between Manual and Automated testing

2. Software Development Life Cycle (SDLC) & STLC

Topics Covered:

SDLC phases (Waterfall, V-Model, Agile/Iterative)

Software Testing Life Cycle (STLC) phases

Entry/exit criteria for testing activities

3. Testing Fundamentals & Principles

Topics Covered:

Seven (or more) testing principles

Verification vs Validation

Test strategy vs Test planning

4. Manual Testing Concepts & Techniques

Topics Covered:

Black-box testing, White-box testing, Grey-box testing

Static vs Dynamic testing

Test design techniques (Boundary value, Equivalence Partitioning, etc.)

5. Test Planning, Monitoring & Control

Topics Covered:

Test plan objectives, Test plan contents

Risk analysis, Resource allocation

Test execution schedule and monitoring metrics

6. Test Case Design & Execution

Topics Covered:

Test scenarios vs Test cases

Writing effective test cases

Traceability matrix (RTM)

Test execution and results tracking

7. Types & Levels of Testing

Topics Covered:

Unit, Integration, System, Acceptance testing

Functional vs Non-functional testing (performance, usability, security)

Regression, Smoke, Sanity, Ad-hoc testing

8. Defect Tracking & Reporting

Topics Covered:

Bug lifecycle, Severity/Priority

Bug reporting templates

Tracking tools overview (JIRA, Bugzilla, etc.)

9. Quality Assurance & Standards

Topics Covered:

QA vs QC

ISO standards, CMM/TQM basics

Test metrics & quality measurement

10. Basics of Automation Testing

Topics Covered:

Why automation? Benefits & scope

Manual vs Automated testing comparison

Selecting tests for automation

11. Selenium WebDriver & Automation Tools

Topics Covered:

Introduction to Selenium IDE/WebDriver/Grid

Locator strategies (ID, XPATH, CSS, etc.)

Handling web elements in automation scripts

12. Automation Frameworks (TestNG/Maven)

Topics Covered:

Automation frameworks overview

TestNG basics (annotations, grouping, reporting)

Maven project structure

Page Object Model (POM) principles

13. Database/SQL & API Testing (Optional Tech Expansion)

Topics Covered:

Basic SQL queries for testing data validation

Introduction to API testing using tools like Postman

JSON/XML data basics for API tests

14. Project Work / Case Studies / Interview Preparation

Topics Covered:

Real-world scenario testing

Test Plan / Test Case project

Resume tips & mock interview questions

ISTQB or certification preparation guidance
