Software Testing Training Curriculum

STRUCTURE

Software Testing Training Curriculum

"Transform your Career with Quality Assurance Mobile Testing Training at TOPS"

(Manual Testing + ISTQB Certification + Database Testing + Basic Mobile Testing Concepts + About Projects)

Course Objectives:

- Learn software testing fundamentals, manual testing, database testing, and basic mobile testing concepts.
- Prepare yourself for ISTQB certification exam and clear it in first attempt.
- Project yourself as a skilled software tester and a knowledgeable quality expert.
- Understand the key issues in testing software applications.
- Learn how to design tests that adequately cover requirements and business events.
- Advance your career by reinforcing your testing expertise.
- Learn from an industry recognized expert in software testing and quality
- Start applying for jobs and get hired by top MNCs worldwide.

Course Description:

This course is designed for people seeking foundation level certification based on the ISTQB certification program and also interested in learning basic software testing fundamentals, manual testing concepts, database testing, mobile testing, live project training, etc. This course completely covers the current ISTQB syllabus and also provides additional information and guidance in key areas.

Our Software testing training program is suitable for testers, test analysts, test engineers, test consultants, test managers, user acceptance testers and software developers. This Foundation Level qualification is also appropriate for anyone who wants a basic understanding of software testing, such as project managers, quality managers, software development managers, business analysts, IT directors and management consultants.

Course Content:

Module 1: Software Testing Fundamentals

- Introduction
  - What is Software Testing?
  - Why do we need Testing?
  - How to perform the Testing?
  - Benefits of Testing
- Software Testing Terminologies
  - Mistakes, Faults, Bugs & Failures
  - Priority & Severity
  - Debugging & Root Cause Analysis
  - Verification & Validation
  - Test Bed/Environment
  - Mock-ups
  - Test Scenario
- Quality Assurance & Quality Control

  - What is Quality Assurance?
  - What is Quality Control?
  - Quality Assurance vs Quality Control
- Software Testing as a Career
  - Best testing practices used in Software Industry
  - Software Tester Roles
  - Job Responsibilities of a Software Tester
  - Why choose Software Testing as a career?
  - How training can help you to become a Software Tester?

Module 2: SDLC vs STLC

- Requirement and Analysis
  - Requirement Gathering
  - SRS Creation
  - Feasibility Study
  - Requirement Validation
  - SRS Approval
  - Project Kick-off
  - Application Walkthrough
  - Requirement Analysis
- Design Concepts in Software Testing
  - System Design
  - Architecture Design
  - Module Design
- Coding/Development
- Testing
- Implementation/Live
- Software Testing Life Cycle (STLC)
  - Requirements analysis
  - Test planning
  - Test development
  - Test execution
  - Test reporting
  - Test result analysis or Defect Analysis
  - Retesting
  - Regression testing
  - Test Closure
- SDLC Vs STLC
  - What is The Difference?
  - Which is better? What to choose?

Module 3: Software Testing Models and Methodologies

- Software Testing Models
  - Waterfall Model
  - Iterative Model
  - Prototyping Model

- Progressive Model
    - Spiral Model
    - V-Model
    - RAD (Rapid Application Development)
- Agile Methodology?
    - What is Agile?
    - Why choose Agile Methodologies?
- Scrum Role in Agile
    - Product Owner
    - Scrum Master
    - Scrum Team
- Work Products
    - Product Backlog
    - Spring Backlog
    - Burndown Chart
- Ceremonies
    - Sprint Planning Meeting
    - Daily Scrum Call
    - The Sprint
    - Sprint Review
    - Sprint Retrospective
    - Scrum of Scrums
- Testing Methodologies
    - Black Box Testing
    - Boundary Value Analysis
    - White Box testing
    - Path Testing
    - Mutation Testing

Module 4: Testing Levels and Testing Types in Software Engineering

- Testing Levels
- Testing Types
- How to choose them?
- Signification of Different Testing Types
- Unit Testing
- Integration Testing
- Re Testing
- Regression Testing
- Usability Testing
- Performance Testing
- Software Stress Testing
- Security Testing
- Smoke Testing
- Compatibility Testing
- System Testing

- UAT (User Acceptance Testing)
- Alpha & Beta Testing

Module 5: Test Cases and Test Plans in Testing

- Test Cases
- Review Process
    - Peer Review
    - Walkthrough
    - Inspection
- Bug/Defect Management
    - Bug/Defect Lifecycle
    - Bug Tracking through Tool (Jira/Bugzilla)
- Test Plan
    - Introduction
    - Test Objective
    - Test Environment
- Scope of Testing
    - Modules to be Tested
    - Modules not to be Tested
    - Types of Testing
    - Levels of Testing
- Testing Schedule
    - Entry Criteria
    - Testing Flow
    - Test Deliverables
    - Defect Tracking
    - Task Management
    - Suspension/Resumption Criteria
    - Risk & Mitigation Plan
    - Completion/Exit Criteria
- Test Design Checklist
- Test Execution Checklist
- Cross Browser Testing

Module 6: Project Life Cycle Management/Live Project

- Introduction to Project Life Cycle
    - Identify Testing Artifacts
    - Test Strategy
    - Test plan
    - Software Test Life Cycle (STLC)
    - Prepare Test Case
    - Optimizing Test Cases (Testing Techniques)
    - Bug Reporting and Management
    - Application Sign Off
- Live Project

    - Requirement Analysis
    - Prepare Query Log
    - Writing Test Cases
    - Review of Test Cases
    - Execution of Test Cases
    - Bug Finding & Reporting
- ISO and CMMI Certifications, its significance

Module 7: ISTQB Certification

- Software Testing Fundamentals
    - Why is Testing Necessary
    - What is Testing?
    - Seven Testing Principles
    - The Psychology of Testing
    - Code of Ethics
- Testing Throughout the Software Life Cycle
    - Software Development Models
    - Test Levels
    - Test Types
    - Maintenance Testing
- Static Techniques
    - Static Techniques and the Test Process
    - Review Process
    - Static Analysis by Tools
- Test Design Techniques
    - The Test Development Process
    - Categories of Test Design Techniques
    - Specification-based or Black-box Techniques
    - Structure–based or White-box Techniques
    - Experience-based Techniques
    - Choosing Test Techniques
- Test Management
    - Test Organization
    - Test Planning and Estimation
    - Test Progress Monitoring and Control
    - Configuration Management
    - Risk and Testing
    - Incident Management
- Tool Support for Testing
    - Types of Test Tools
    - Effective Use of Tools: Potential Benefits and Risks
    - How to Introduce a tool into an Organization?

Module 8: Selenium Testing

01 # Java Course Contents

- Introduction to java
    - What is java?
    - Programming language hierarchy
    - Java files
    - Camel casing
    - Identifiers
    - Java Components naming standards
    - Java source file declaration rules
    - First Java program
- Classes and Objects
    - Introduction to Classes and objects
    - Understanding Java Heap
    - Creating first Class and Object
- Variables and Operators
    - Introduction to Variables and their data types
    - Primitive and Non-primitive variables
    - Variable Casting
    - Object references
    - Java Operators
- Java Methods and their communication
    - Introduction to methods
    - Method arguments and return types
    - Pass by Value
    - Encapsulation
    - Getters and Setters
- Loops and Arrays
    - If-else statement
    - While loop
    - Do-while loop
    - For loop
    - Enhanced for loop
    - Arrays – 1D and 2D
    - Reference in an array
- Understanding Java-API
    - Understanding API using ArrayList
    - ArrayList fundamentals
    - Using Java Library
    - Using Packages
    - Using HTML- API docs
- Inheritance and Polymorphism
    - Understanding inheritance and inheritance tree
    - Methods overriding and the rules
    - IS-A and HAS-A relationship
    - Super class Vs Subclass
    - Method Overloading
    - Access Modifiers
- Abstract Classes and Interfaces

  - Abstract classes and methods
  - Mother of all classes – "Object class"
  - Polymorphic reference
  - Object reference casting
  - Deadly Diamond of Death
  - Interfaces and it's implementation
- Garbage Collection and Constructors
  - Concept of Stack and Heap
  - Methods and classes on Stack and Heap
  - Constructors
  - Constructor Overloading
  - Constructor chaining and this() keyword
  - Garbage collection eligibility
- Statics and data formatting
  - Static methods, variables and constants
  - Math class and methods
  - Wrapper classes
  - Auto boxing
  - Data formatting and static imports
- Exception handling
  - Risky java codes
  - Introduction to Java Exceptions
  - Catching exceptions using try/catch block
  - The finally block
  - Catching multiple exceptions
  - Handle or Declare law of exceptions
- Serialization and file I/O
  - Saving objects state
  - Writing serialized object
  - I/O streams
  - Serializable interface
  - Deserialization
  - Java IO file
  - Reading/Writing a text file
- Collections
  - Introduction to Java collections
  - Concept of generics
  - Lists
  - Sets
  - Map
  - Hashmap
- JDBC
  - JDBC concepts and terminology
  - JDBC package
  - Creating connection to a DataBase
  - Accessing and manipulating tables using JDBC
  - Sql statements

02 # Selenium WebDriver3.0

- Introduction to Selenium WebDriver
  - What is WebDriver
  - Exploring Webdriver java docs
  - Downloading Webdriver jar files
  - Open Google home page through WebDriver
  - Exploring more features of WebDriver
  - WebDriver Features & Examples
  - Handling HTML Elements such as: Text box, Hyperlinks, Submit buttons,
  - Radio buttons, Check boxes, Dropdown etc
  - Finding Elements & text on a Webpage
  - Printing all links and other values from a webpage and HTML Elements
  - Using By class to find elements using different methods
  - Implement global wait
  - Running test in multiple browsers
  - Firefox profile
  - Running test in multiple profiles
- Advance WebDriver Features
  - Simulating keypress events such as buttons such as Enter, page up, pagedown, backspace
  - Handling java script messages
  - Working with online captchas
  - Running the test with HTMLUnit driver
  - Online Webtables
  - Downloading and configuring chrome driver
  - How to find Xpaths through Chrome developer tool
  - Generating your own Xpaths
  - What if you don’t have firebug or firepath
  - Handling multiple pop ups/tabs in Chrome
  - Handling Mouse over Menus and Iframes
- Ajax & Listeners
  - How to handle Ajax based applications
  - Browser navigate methods
  - Listeners
  - Mouse movements
  - Explore action class mouseover method
  - Working with Javascriptexecutor
    - Drag and Drop
    - Resizable
    - Handling Sliders
- Flash Testing with Selenium WebDriver
  - What is flash/flex testing
  - Downloading and installing flash jar file
  - Automating flash player

- Using different call methods of YouTube flash player

03 # TestNG Framework

- Integration and Execution of Test Suite using TestNG Framework
    - What is TestNg
    - Installing TestNg in Eclipse
    - TestNg Annotations
    - Understanding usage of annotations
    - Running a Test in TestNg
    - Batch Running of tests in TestNg
    - Skipping Tests
    - Parameterizing Tests – DataProvider
    - Assertions/Reporting Errors
    - TestNg Reports
    - Advantages over Junit

04 # ReportNG Framework

- ReportNG is a simple plug-in for the TestNG unit-testing framework to generate HTML reports as a replacement for the default TestNG HTML reports.
- Configuring ReportNG with TestNG for HTML Reports

05 # Selenium Grid - Cross Plateform & Parallel Execution

- Cross Browser and Cross Platform Testing using Web Driver
    - What is Selenium-Grid?
    - How Selenium-Grid Works–With a Hub and Nodes
    - Configuring Selenium-Grid
    - Default Configuration
    - JSON Configuration File
    - Configuring Via the Command-Line Options
    - Node Configuration
    - Timing Parameters

06 # Robot Class

This class is used to generate native system input events for the purposes of test automation, self-running demos, and other applications where control of the mouse and keyboard is needed. The primary purpose of Robot is to facilitate automated testing of Java platform implementations. Using the class to generate input events differs from posting events to the AWT event queue or AWT components in that the events are generated in the platform's native input queue. For example, Robot.mouseMove will actually move the mouse cursor instead of just generating mouse move events.

07 # Integration of Selenium with Jenkins

In Selenium Training, Croma Campus will include the latest implementation of automation concepts like: Integration of Jenkins and Selenium Automation testing. Jenkins is a powerful and highly configurable continuous integration tool (CI) tool that is commonly used on IT projects to manage builds and releases. Selenium is a powerful suite of tools that automates web browser testing. Our training will guide you through the steps required to get you started with Jenkins and

Selenium from an automation tester's perspective. During our training we will cover the following aspects:

- Installation and setup of Jenkins & Selenium project on your laptop.
- Jenkins Overview.
- Jenkins Plugins.
- Jenkins Configuration for a Java-based Project.
- Integration of Selenium and Jenkins CI.
- Reporting and Validation in Jenkins.
- Continuous integration and continuous testing
- Test Execution.
- SVN, Junit, Source Control, Ant, Maven Java integration.

08 # Data Driven & Hybrid Test Automation Framework

Covers end to end steps followed while creating the framework:

- Test Data files
- TestCore class which loads Xls file, run selenium server through code and do other initialization
- Object.Properties file to store Xpaths
- Configuration Files
- Skipping Test Cases
- Screenshot Capturing
- Emailing Test Results
- Generating Reports
- Generating Application and Selenium logs
- Running framework automation through Maven

09 # Database Testing - Java DataBase Connectivity JDBC

- Installing MySQL Database
- Java.Sql Package|JDBC Drivers
- Connection Interface
- Statement and Prepared Statement Interfaces
- ResultSet Interface
- Firing Select, Insert, Update and Delete queries with database using Java JDBC
- Looping the ResultSet
- Using Annotations of Junit/TestNg to establish connection with database when Using Selenium

Module 9: Database Testing

- What is database testing?
- Database testing through SQL

- What is SQL?
- Basic SQL Queries
- Create SQL Queries
- Writing SQL Queries
- SQL Where Clause
- AND/OR clauses
- Order By/Update/Delete database
- Primary Key vs Foreign Key
- Joining Tables
- LEFT/RIGHT JOIN
- Joining more than two tables- complex queries
- Using Aggregation to determine data health
- Foreign Key Problems
- Using Sub-queries
- Generating Test Data
- Views and Indices

Module 10: Mobile Testing Basics

- Mobile Testing Introduction
    - Overview of Mobility Testing
    - Mobile Application Development Process
    - Introduction to various Mobile platforms
    - Introduction to Various Apps, Mobile App, Web based App, Native App, Hybrid App.
- Mobile Testing Strategy
    - Device Emulator
    - Mobile Cloud Computing (Remote Real Devices)
    - Real Time Devices
    - Automation Tools
    - Emulators and its usage
    - Installation and un- installation of Android Emulator
- Mobile Testing Approach
    - Mobility Application – Test Approach/Phases
    - Test Requirements
    - Test Planning
    - Test Environment setup
    - Test Design
    - Test Execution and Defect tracking
    - Test Reports and Acceptance
- Mobile Testing Scope
    - Unit testing
    - Integration testing
    - Functional testing
    - Device conformance testing
    - System testing

    - Regression testing
    - Mobile browser compatibility testing
    - Performance testing

Module 10: Placement Guide

- What is an Interview?
- Tips to clear an Interview
- Common Interview questions and answers
- Software Testing Interview Questions and Answers
- Resume Building Guide
- Attempt for Software Testing Global Certification Exam
- Start applying for Jobs