

Course Content Structure

Module 1: Software Testing Concepts & Methodologies (ISTQB Foundation Level Examination)

- **Fundamentals of Testing**
 - Software Systems Context
 - Causes of Software Defects
 - Role of Testing in Software Development, Maintenance and Operations
 - Testing and Quality
 - What Is Testing?
 - Seven Testing Principles
 - Fundamental Test Process - Introduction
 - Fundamental Test Process - Planning and Control
 - Fundamental Test Process - Analysis and Design
 - Fundamental Test Process - Implementation and
 - Fundamental Test Process - Evaluating Exit Criteria and Reporting
 - Fundamental Test Process - Test Closure
 - Fundamental Test Process - Conclusion
 - Independent Testing
 - Developer - tester Communication
 - Fundamentals of Testing Quiz

- **Testing Throughout the Software Life Cycle**
 - Software Development Models: The Waterfall Model
 - Software Development Models: Verification and Validation
 - The V-Model
 - Incremental - Iterative Development Models
 - Test Levels : Unit Testing
 - Testing Levels: Integration Testing
 - Testing Levels: System Testing
 - Testing Levels: Acceptance Testing
 - Test Types
 - Test Types Vs Test Levels
 - Maintenance Testing
 - Testing Throughout the Software Life Cycle Quiz

- **Static Techniques**
 - Reviews and The Test Process
 - Review Process: Introduction
 - Activities of the Review Process
 - Formal Review Roles and Responsibilities
 - Review Types
 - Review Process: Success Factors
 - Static Analysis by Tools

- **Test Design Techniques**
 - The Test Development Process
 - Categories of Test Design Techniques

- Specification-Based Or Black-Box Techniques : Equivalence Partitioning
- Equivalence partitioning Example
- Specification-Based Or Black-Box Techniques : Boundary Value Analysis
- Boundary Value Analysis Example
- Specification-Based Or Black-Box Techniques : Decision Table
- Specification-Based Or Black-Box Techniques : State Transition Diagram
- Specification-Based Or Black-Box Techniques : Use Case Testing
- Structure-Based Or White-Box Techniques : Introduction
- Structure-Based Or White-Box Techniques : Statement Coverage
- Structure-Based Or White-Box Techniques : Decision Coverage
- Experience-based Techniques

- **Test Management**

- Independent Testing
- Tasks of Test Leader and Tester
- Test Strategy and Test Approach
- Test Planning
- Test Plan Sections
- Test Planning Activities
- Test Estimation
- Test Progress Monitoring
- Test Summary Reporting
- Test Control
- Configuration Management
- Incident Management

- **Tool Support For Testing**

- Tools Support for Testing: Introduction
- Test Tool Types : Test Tools Classification
- Test Tool Types : Test Management Tools
- Test Tool Types : Static Testing Tools
- Test Tool Types: Test Specification Tools
- Test Tool Types: Test Execution and Logging Tools
- Test Execution Tool Types
- Test Tool Types : Performance and Monitoring Tools
- Test Tool Types : Specific Testing Needs Tools
- Potential Benefits and Risks of using Tools

Module 2: Test Automation

- **Core Java**

- Language Fundamentals
- Declarations and Access Control
- Interfaces
- Operators

- Flow Control
- Exception Handling
- Assertions
- Garbage Collections
- OOPs
- Multi-Threading
- Java. Lang Package: String, String Buffer, String Builder, Wrapper Classes, Object,
- java.io package
- Collections Framework
- Generics
- Inner Classes
- Regular Expressions

Module 2: Web Automation

- **Selenium Introduction**
 - Why Selenium
 - How Selenium Web Driver Architecture works
- **Selenium and installation of required tools and plugins**
- **Selenium WebDriver-Setup**
- **Selenium WebDriver-Running test on various browsers**
 - Running Tests On Firefox With Selenium 3.x
 - Running Tests On Google Chrome
 - Running Tests On Internet Explorer
 - Requirements To Run Tests On Safari
- **Multiple ways to locate Element**
 - Find Elements Using ID And XPATH
 - Find Elements Using Name
 - Find Elements Using LinkText And PartialLinkText
 - Find Elements Using ClassName
- **CSS and XPATH Advance Level Locators**
- **Selenium WebDriver->Working with Web Elements**
 - How To Click And Type On A Web Element
 - How To Navigate Between Web Pages
 - How To Find The State Of A Web Element (Disabled And Enabled Elements)
 - Radio Buttons And Check Boxes
 - Working With List Of Elements
 - Understanding Dropdown Elements
 - Understanding Multiple Select Elements
 - Work With Hidden Elements
- **Handling Synchronization Issues and wait times**
- **Handling JavaScript Execution**
- **Switch Window and Iframe**
 - How to switch window focus
 - How to work with Iframes
 - Handling JavaScript Popup
 - Key press Events
- **Calendar Section-Working with date pickers**

- **Build Management with Maven**
- **Continuous Integration with Jenkins**

Module 2: Rest API Automation

- **REST API Basics and Terminology**
 - Introduction to REST API
 - Understanding how REST API architecture works
 - What is BaseURL, Resources in REST API?
 - Understanding GET, POST, PUT, DELETE requests
 - What are headers and cookies in rest request
- **Rest Assured setup for API automation**
- **Postman-Manual Testing Client for Rest API**
- **Validating Rest API Responses**
 - Validating the body of first Json response
 - Examples on validating response headers and status codes
 - Understanding query parameters on sending request
- **Automating Rest API's**
 - Automating POST request with payload
 - Grabbing the response body into String for Advance validations
 - Passing the response values into subsequent requests
 - Optimizing the scripts by centralizing the data
 - Data driven testing best practices
- **Automation Utilities for Parsing the Json/XML responses**
- **Automation with SOAP UI**
- **Rest API framework development**

Module 3: Performance Testing

- **Introduction**
 - Why Do You Want to Test Application For Performance?
 - Types of Test to address performance issues
 - Types of performance testing
 - Risk addressed through performance testing
- **Setting up test environment**
- **Workload design**
- **Testing implementation**
 - Phases of test implementation
 - Creating a simple load generator
- **Scripting with Load runner VuGen**
- **Design scenario in controller**
- **Working with Load runner performance center**

- **Working with JMeter**
- **Result analysis and report**
 - Performance Analysis Fundamentals
 - Average Response time analysis
 - Percentile response time analysis