**Course outline**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **Day** | **Time** | **Training Topics** | **Durations** |
| 28-Feb-23 | Tue | 11 am - 7 pm | Quality Assurance and Control / Introduction to Testing | 1 |
| 01-Mar-23 | Wed | 11 am - 7 pm | Introduction to Testing / Test Strategy & Planning | 1 |
| 02-Mar-23 | Thu | 11 am - 7 pm | Test Design Methods & Techniques | 1 |
| 03-Mar-23 | Fri | 11 am - 7 pm | Test Design Methods & Techniques | 1 |
| 06-Mar-23 | Mon | 11 am - 7 pm | Test Design Methods & Techniques | 1 |
| 07-Mar-23 | Tue | 11 am - 7 pm | Writing Test Cases | 1 |
| 08-Mar-23 | Wed | 11 am - 7 pm | Holiday Holi |  |
| 09-Mar-23 | Thu | 11 am - 7 pm | Test Execution & Reporting Defect Recording & Management | 1 |
| 10-Mar-23 | Fri | 11 am - 7 pm | Scripting for Testers | 1 |
| 13-Mar-23 | Mon | 11 am - 7 pm | Selenium Test Automation | 1 |
| 14-Mar-23 | Tue | 11 am - 7 pm | Selenium Test Automation | 1 |
| 15-Mar-23 | Wed | 11 am - 7 pm | Selenium Test Automation | 1 |
| 16-Mar-23 | Thu | 11 am - 7 pm | Selenium Test Automation | 1 |

|  |
| --- |
| **1           Quality Assurance and Control** |
| **1.1         Quality philosophy and principles** |
| 1.1.1           Benefits of software quality |
| 1.1.2           Prevention vs. detection |
| 1.1.3           Organizational and process benchmarking |
| **1.2         Definitions & Terms used in Quality** |
| 1.2.1           Quality Assurance & Quality Control |
| 1.2.2           Cost of Quality |
| 1.2.3           Software Quality Factors |
| 1.2.4           What is Quality Software |
| **1.3         Goals and Objectives of Software Quality Management** |
| **2           Introduction to Testing** |
| **2.1         Why do we Test Software?** |
| 2.1.1           Users View of Application |
| 2.1.2           Causes of Defects in Software Development |
| 2.1.3           Understanding Risk of Failure |
| 2.1.4           Reducing the frequency of Defects in Development |
| 2.1.5           Testing after Enhancement / Changes |
| **2.2         Overview to Testing Life Cycle** |
| 2.2.1           Overview to SDLC |
| 2.2.2           Scope of Testing in SDLC |
| 2.2.3           When should Testing Occur? |
| 2.2.4           Independent Verification & Validation |
| 2.2.5           Steps involved in Software Testing |
| 2.2.6           Roles & Responsibilities for Software Testing |
| 2.2.7           Constraints for Testing |
| 2.2.8           When to stop testing? |
| **2.3         Software Testing Process** |
| 2.3.1           Types of Testing |
| 2.3.2           Levels of Testing |
| 2.3.3           Testing Techniques & Methods |
| 2.3.4           Tester’s Workbench Process |
| **3           Test Strategy & Planning** |
| **3.1         Vocabulary** |
| 3.1.1           Tasks, Activities, Events and Methods |
| 3.1.2           Strategy and Plan |
| 3.1.3           Estimating, Planning, Tracking, Controlling |
| **3.2         Understanding Risk** |
| 3.2.1           Concept of Risk |
| 3.2.2           Common Risks in Executing Testing Projects |
| 3.2.3           Risk Analysis Process |
| **4           Test Design Methods & Techniques** |
| 4.1         Vocabulary |
| 4.1.1           Types of Design Techniques |
| 4.1.2           Black Box & White Box Testing |
| 4.2         Specification Based Techniques (Black Box) |
| 4.2.1           Equivalence Class Partitioning |
| 4.2.2           Boundary Value Analysis |
| 4.2.3           Decision Table |
| 4.2.4           State Transition Testing |
| 4.3         Structure Based Techniques (White Box) |
| 4.3.1           Statement Coverage Techniques |
| 4.3.2           Decision Coverage Techniques |
| 4.3.3           Path Coverage Techniques |
| 4.4         Test Design Specification |
| 4.4.1           Developing Test Design Specification |
| 4.4.2           Development of Scripts & Cases |
| 4.4.3           Test Design Specification Format |
| 4.4.4           Exploratory Test Design |
| 4.4.5           Smoke Testing |
| 4.4.6           Sanity Testing |
| 4.5        Test Driven Development (TDD), BDD |
| 4.5.1           Overview of TDD Style of Development |
| 4.5.2           SDLC flow in TDD environment |
| 4.5.3           Three Steps – RED, GREEN and REFACTOR |
| 4.5.4           Step-by-step execution in TDD framework |
| 4.5.5           An example to showcase TDD significance |
| **5           Writing Test Cases** |
| **5.1         Introduction to Test Documentation** |
| 5.1.1           Introduction to Test ware |
| 5.1.2           Test Documentation - Overview and Benefits |
| **5.2         Fundamentals of Test Case Writing** |
| 5.2.1           What is a Test Scenario? |
| 5.2.2           How to Derive a Test Scenario? |
| 5.2.3           What is a Test Case? |
| 5.2.4           Why Test Case is required? |
| 5.2.5           What would happen if there is no Test Case? |
| **5.3         Generating Test Cases** |
| 5.3.1           Inputs for writing Test Cases |
| 5.3.2           Preparation of a Test Case |
| 5.3.3           Components of a Test Case |
| 5.3.4           Standard Templates used for writing test cases |
| 5.3.5           Review a Test Case |
| 5.3.6           Characteristics of a good Test Case |
| 5.3.7           Best practices in writing Test Case |
| 5.3.8           Case Study |
| **6           Test Execution & Reporting** |
| **6.1         Performing Tests** |
| 6.1.1           Platforms |
| 6.1.2           Test Cycle Strategy |
| 6.1.3           Test Phase Strategy |
| 6.1.4           Perform Tests |
| 6.1.5           Use of Tools in Testing |
| 6.1.6           Completeness of Testing |
| 6.1.7           Define Exit Criteria |
| **6.2         Recording the Test Results** |
| 6.2.1           Pre-requisites to reporting results |
| 6.2.2           Problem Deviation |
| 6.2.3           Problem Effect |
| 6.2.4           Problem Cause |
| 6.2.5           Documentation - Test Result Reporting Format |
| 6.2.6           Documentation – Test Summary Report |
| 6.2.7           Use of Test Results |
| **6.3         Reporting Test Results** |
| 6.3.1           Current Status Test Reports |
| 6.3.2           Final Test Report |
| **7           Defect Recording & Management** |
| **7.1         Introduction to Defect Recording** |
| **7           Defect Recording & Management** |
| 7.1.1           When can a defect be detected? |
| **7.2         Defect lifecycle** |
| **7.3         Defect Fields** |
| 7.3.1           Step 1: Recognition |
| 7.3.2           Step 2: Investigation |
| 7.3.3           Step 3: Action |
| 7.3.4           Step 4: Disposition |
| **7.4         Defect Management** |
| 7.4.1           Defect Naming Guidelines |
| 7.4.2           Defect Management Process |
| 7.4.3           Metrics in Defect Management |
| **7.5         Defect data analysis** |
| **7.6         Defect Prevention Activities** |
| **8           Scripting for Testers** |
| **8.1         VB Scripting Fundamentals** |
| 8.1.1           Basic Data Types |
| 8.1.2           Variables |
| 8.1.3           Constants |
| 8.1.4           Conditional statements |
| 8.1.5           Loops |
| 8.1.6           Functions |
| 8.1.9           Working with Object Model Reference |
| **9 Ranorex** |
| **10       Selenium Test Automation** |
| **10.1     Day1 - Introduction to Automation o What is Automation Testing?** |
| 10.1.1 Advantages & Limitations of Automation Testing |
| 10.1.2 Automation Criteria (Automate or Not) |
| 10.1.3 Web Applications and Test Automation for Web Applications Introducing Selenium o What is Selenium? |
| 10.1.4 History of Selenium o Selenium Components overview |
| 10.1.5 Selenium IDE o Selenium RC |
| 10.1.6 Supported Browsers and Platforms |
| 10.1.7 Flexibility and Extensibility Eclipse, Java, Junit |
| 10.1.8 Usage of Eclipse |
| 10.1.9 Sample JAVA Program to Get Hands on Eclipse |
| 10.1.10 Running & Debugging JAVA Programs |
| 10.1.11 JUnit Basics |
| 11.1.12 JUnit Usage with Selenium |
| 11.1.13 JUnit annotations |
| 11.1.14 Exercise on JUnit Selenium Web Driver |
| 11.1.15 Introduction of Selenium Web driver |
| 11.1.15 Downloading and configuring Webdriver in eclipse |
| 11.1.16 Drivers for Firefox, IE, Chrome, HTML Unit |
| 10.1.17 Hands-on exercise |
| 10.1.17 Page object model will help to create good framework structure with easy maintenance. |
| **10.2 Day 2 - Element Locator** |
| 10.2.1 Object Identification |
| 10.2.2 Installing Firebug and Firepath |
| 10.2.3 Working with Firebug and FirePath |
| 10.2.4 Identifying WebElements using id, name, linkname, class, xpath, tagname,CSS |
| 10.2.5 Hands-on exercise Form Controls |
| 10.2.6 Accessing Input box |
| 10.2.7 Accessing Combo Boxes by using Select |
| 10.2.8 Accessing Checkbox, RadioButtons with example |
| 10.2.9 Accessing Submit Buttons with example |
| 10.2.10 Accessing Links with example |
| 10.2.11 Extracting Data from WebTable More on locators |
| 10.2.12 Choosing right locator |
| 10.2.13 Building your own CSS and Xpath |
| 10.2.14 Hands-on Exercise |
| **10.3 Day 3 - Synchronization** |
| 10.3.1 Why synchronization? |
| 10.3.2 Thread.sleep |
| 10.3.3 Implicit Wait |
| 10.3.4 Hands-on Exercise |
| 10.3.5 Expected Conditions |
| 11.3.6 Creating your own Expected Condition |
| 10.3.7 Handling Ajax applications Handling Pop-up Windows |
| 10.3.8 Handling JavaScript Alerts |
| 10.3.9 Handling Browser Pop-up windows |
| 10.3.10 Handling Native Pop-up windows |
| 10.3.11 Hands-on Exercise WebDriver Advanced |
| 10.3.12 Taking Screenshot |
| 10.3.13 Window Handles |
| 10.3.14 Mouse Hover |
| 10.3.15 Mouse Drag |
| 10.3.16 Handling frames |
| **10.4 Day 4** |
| **10.4.1 TestNG Framework** |
| 10.4.1.1 Introduction |
| 10.4.1.2 Annotations |
| 10.4.1.3 testng.xml |
| 10.4.1.4 Running TestNG |
| 10.4.1.5 Test methods, Test classes |
| 10.4.1.6 Parameters from testng.xml |
| 10.4.1.7 Parameters with DataProviders |
| 10.4.8 Automation Frameworks  Automation Frameworks? |
| 10.4.9 What is Keyword Driven Framework |
| 10.4.10 Reading from an Excel File |
| 10.4.11 Writing to an Excel File |
| 10.4.12 Building keywords from Excel |
| 10.4.13 Handling JavaScript Alerts |
| 10.4.14 Handling Browser Pop-up windows |
| 10.4.15 Handling Native Pop-up windows |
| 10.4.16 Hands-on Exercise WebDriver Advanced |
| 10.4.17 Taking Screenshot |
| 10.4.18 Window Handles |
| 10.4.19 Mouse Hover |
| 10.4.20 Mouse Drag |
| 10.4.21 Handling frames |
| Day 4 - TestNG Framework |
| o Introduction |
| o Annotations |
| o testng.xml |
| o Running TestNG |
| o Test methods, Test classes |
| o Parameters from testng.xml |
| o Parameters with DataProviders Automation Frameworks |
| o What is an Automation Framework? |
| o What is Keyword Driven Framework |
| o Reading from an Excel File |
| o Writing to an Excel File |
| o Building keywords from Excel |
| **10.5 Day 5 - Cucumber** |
| **11     Web Service Testing - Overview** |