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| **Topic** | **Course Coverage** | **Days** |
| **Fundamentals Of Testing** | Fundamentals of Testing | **1** |
| Why Testing is necessary |
| What is testing |
| SDLC Life cycle -Agile model |
| Testing Within a Lifecycle Model |
| Testing Levels |
| component Testing |
| Integration Testing |
| System Testing |
| Acceptance Testing |
| Test Types |
| Functional Testing |
| Non-Functional Testing |
| Structural Testing |
| Re-testing and Regression Testing |
| Maintenance Testing |
| Static Techniques |
| Static Techniques and The test process |
| Review Process |
| Activities of a Formal Review |
| Roles and Responsibilities |
| Types of Reviews |
| Static Analysis by Tools |
| Test Design Techniques |
| The Test Development process |
| Categories of Test Design Techniques |
| Specification Based or Black Box Techniques |
| Equivalence portioning |
| Boundary value Analysis |
| Decision Table Testing |
| State Transition Testing |
| Use Case Testing |
| Exercise on These techniques |
| Introduction to Test Scenario |
| Extracting Test Scenarios for an application |
| Designing Test Case |
| Types of Test Tools |
| Intro to Tool support for Testing |
| **TestNG** | Framework Part -1 – TestNG/Junit • Why TestNG/Junit and Its Advantages • TestNG/Junit Installation and Setup in Eclipse • TestNG/Junit Annotations Part • Prioritizing the tests using TestNG/Junit • Disabling Enabling the Test cases and putting Timeout • Importance of TestNG xml file • Including and excluding the Test cases from Execution with TestNG xml file • Importance of Groups in TestNG• Data driving Testing with TestNG • Data Provider Annotation -Parameterizing Test cases • Parameterizing from TestNG xml file | **1** |
| **Selenium WebDriver** | Selenium Introduction | **3** |
| Selenium 4.0 WebDriver Architecture |
| Locator Techniques& Tools used |
| Preview Browser Add-ons overview to identify elements |
| Locator Techniques : XPath identification, CSS identification, Name ,ID, ClassName, LinkText,-Handling links |
| XPath, CSS Validation using chrome and javascripts |
| Basic Methods of WebDriver |
| How to run tests in Google Chrome,IE,Mozilla |
| Handle Dynamic dropdowns with WebDriver API |
| Handle Dynamic dropdowns with WebDriver API |
| Handling Checkboxes,Radiobutton,textbox with WebDriver API |
| Types of Alerts present and Methods to handle them |
| End to End Practice Exercise  Real Time Exercises (end to end Programming) |
| Test Cases- Practice Exercise |
| Test Cases- Practice Exercise |
| Getting Count of links in the pages ,sections |
| Testcases-Practice Exercise-2 • Exercise 2.1-Dynamic data in Websites • Exercise 2.2-Dynamic Links Handling Exercise 2.3-Validations & checkpoints |
| ADVANCED WAYS-locating objects • writing Customized XPath Using Attributes • Writing customized XPath Using Tagnames Traversing |
| Techniques to automate ADVANCNED Web UI • Handling Ajax/Mouse Interactions • Handling java script actions • Actions class-real time example• Handling Multiple Windows • Window Handle concepts-real time example • Live Example on working with Child windows • Handling ul li Tags in Selenium |
| • How to handle Frames? • Frames Techniques-real time example Practical problems and Methods to handle them with Selenium |
| • How to handle table Grids in webpage • Techniques used for table grid-Real time example |
| How to overcome Synchronization problems |
| Maximizing window and deleting cookies |
| How to take Screenshots in Selenium |
| Data driving from Excel for feeding data • what is Apace POI API & Download Instructions • Excel API Methods explanation • Program for Retrieving data from excel • Program for Updating data back to excel |
| **PageObjectModel (FrameWork Desigining)** | Framework Part 2 - Page Object Model • What is Page object model? • Creating Page object Constructor in classes • Practical Exercise explaining Pageobject Model Framework Part 3 - Page Factory  • Creating Page Factory Project Framework Part 4 – Reporting using TestNG, Extend Report  Excel Data Comparison | **1** |
| **Maven ,DB Connection and DB testing** | Framework part 3 - MAVEN-Build Management Tool • What is Build Management tool? • Installing & configuring MAVEN • Understanding POM.xml file • Different MAVEN Commands to trigger framework.  Database Connectivity and Test Scenarios • Establishing connection to database • Sql queries • Fetch Data • Add Data • Update Data • Compare Data • CURD operations on database using Java | **3** |
| **BDD/Cucumber** | Introduction to BDDIntroduction to Cucumber Cucumber, Gherkin Cucumber Fundamentals Cucumber Workflow – The Cucumber Testing Stack Break-down of expressing Acceptance Tests in Cucumber Beginning Cucumber Setup Cucumber Configure Cucumber in Eclipse Cucumber Console Windows Cucumber Console Window Color Coding  The Gherkin Language & use in Cucumber Gherkin Keywords Feature, Background, Scenario, Step Given, When, Then, And, But Practicals: Cucumber Features Step Definitions Understanding the Goal Create Feature Create Step Implement Steps Cucumber Annotations Run Program – Executing BDD Test Cases Cucumber Output Types Use Formatters to understand Cucumber Output Types Adding Assertions Cucumber Reports Cucumber Debugging Practicals: Cucumber Options Using dryRun, features, glue, tags, monochrome, format, strict Practicals: Assertions using Junit Junit Annotations Purpose and When to use which each Annotations Junit in CI (Jenkins) Cucumber-Junit implementation for Continuous Integration in Jenkins Practicals: Setup and TearDown in Cucumber Use of Background to set Prerequisites Working with Data Tables What is Data Tables Difference in Data Tables and Scenario Outline Practicals: Data Tables in Cucumber | **2** |
| API Testing | POST Man Installation and executionREST API Basics and Terminology o Introduction to REST API o Understanding how REST API architecture works o What is BaseURL, Resources in REST API? o Understanding GET, POST, PUT, DELETE requests o What are headers and cookies in rest request?  What is Rest Assured? Getting started with REST Assured Automation o Understanding google place Search API for scripting o Introduction to POSTMAN -Manual testing client for REST API o Adding new place in Google Maps with google API o Validating responses with POSTMAN client o Introduction on Test API’s o Setup Rest Assured in Eclipse / IntelliJ o Setting up Test Project with RestAssured API&#39;s o Understanding given tag for passing requests o Validating the body of first Json response o Examples on validating response headers and status codes o Understanding query parameters on sending request  Why need Rest-Assured? Diving in Depth-Automating REST API's  o Automating POST request with payload  o Grabbing the response body into String for Advance validations  o Passing the response values into subsequent requests  o Optimizing the scripts by centralizing the data  o DataDriven testing best practices  o Validating Advanced xml responses  o Shortcut methods to convert Rawdata to xml/Json  o Parsing Json response to extract values  o Logging feature to debug automation scripts | **3** |
| Git and Git hub | • GIT Installation • Working with GIT | **1** |
| Jenkins and Advanced Concepts | • Why Jenkins? and where it going to help us in Framework design? | 2 |
| • Installing & Configuring Jenkins with Java and ANT |
| • Creating Jenkins project and integrating Existing Framework |
| • Running the Framework and Scheduling it from Jenkins |
| Cross Browser Testing with Selenium Grid |
| • How to execute Selenium Tests Remotely |