# **Module 1 - Software Testing Fundamentals**

Module will cover the fundamentals of testing, Software development life cycle and Software Testing Lifecycle. In this module you will develop understanding of different terms used in the software testing, different types of testing.

Module Details:

1. Introduction to software testing.
2. Need of Testing.
3. Understanding of Backend and Front End.
4. Functional/Non-Functional Testing
5. Type of Testing (Unit/Smoke etc.)
6. STLC and Test Scenarios
7. Technique to write Test Cases, understanding the conditions.
8. Tools / Repositories for maintaining Test Cases
9. Test Data management
10. Test Execution and Reporting
11. Defect management and Defect Management Tools like Bug Zilla & Jira
12. Understanding Test Plan, Strategy and Other artifacts.

**Term Project:**  Study an LMS application and write test cases for the LMS application.

# **Module2 - Linux Fundamentals**

Module will cover the fundamentals of Linux and cloud computing; you will be developing skill to run the jobs on Linux and accessing a Linux machine on AWS cloud.

Module Details:

1. Introduction to Operating Systems.
2. Overview of Linux Operating System.
3. Basic commands like ls, pwd ..
4. Advance command like top, find etc..
5. Introduction of AWS cloud
6. Spinning a Linux System on cloud
7. ssh & Sftp in action using user/pass and private/public key.
8. Basic shell scripting.

**Term Project:**  Deploy a nodejs application on AWS using ssh & sftp and start the app.

# **Module3 - Git Fundamentals**

Module will cover the fundamentals of Git and enable participant to use git version control efficiently.

Module Details:

1. Introduction to Source Code control systems.
2. Overview of Git.
3. Creating/cloning a new repo.
4. Committing files in git.
5. Branching in git
6. Fix merge conflict and mistakes
7. Merge request/pull requests.

**Term Project:**  Clone a test automation project from gitlab, set up your private key and create a branch and push your branch to gitlab.

# **Module4 – Core Java**

Module will cover the basic of programming, followed by Core Java language. At the end of module, you would be able to write simpler java programs.

Module Details:

1. Introduction to Programing.
2. Introduction of Java
3. Understanding of JVM/JRE/JDK
4. Data Types and Operators
5. Constructs – like if/if-else
6. Loops – for/while/do-while
7. Methods
8. Method overloading
9. Static methods and final
10. Object Oriented Programming Concept
11. Understanding of constructors
12. String – String/String Buffer
13. Arrays
14. Inheritance
15. Package and interface
16. Encapsulation
17. Exception Handling
18. Collections – List/Set/Map

# **Module5 – Maven & Gradle**

Module will cover the Java Project Management tools to manage and a java project

Module Details:

1. Introduction to Maven
2. Understanding pom.xml
3. Understanding dependencies
4. Understanding plugins
5. Understanding goals
6. Introduction to Gradle
7. Understanding gradle.build

# **Module6 – TDD Frameworks**

Module will cover the definition of TDD and will cover TDD frameworks Junit & Test NG,

Module Details:

1. Concept of TDD.
2. Introduction of Junit
3. Introduction of TestNG
4. Setup methods @BeforeSuite/@BeforeTest etc.
5. Test methods and options
6. Groups
7. Control execution with xml
8. Surefire plugin
9. Listeners
10. Parameterization
11. Reports and Reporter
12. Assertion

# **Module7 – XML/HTML/CSS/JS**

Module will cover the basic of Web Application and fundamentals of the HTML/CSS/JS,

1. Introduction to XML.
2. Introduction to HTML
3. Introduction of XPATH
4. XPath functions
5. Introduction to CSS.
6. CSS selector
7. CSS functions
8. Introduction to Java Script
9. Java Script event and interaction with Elements

# **Module8 – Selenium**

Module will cover the basics and advance of the selenium automation library

1. Selenium Overview and Architecture.
2. WebDriver Interface and Type of Driver
3. Locators- (ID, Name, Class Name, Tag Name, Link Text, Partial Link Text, CSS Selector, and XPath)
4. Web Element Interface.
5. Alerts, Popups, Select, Multiple Windows, Iframes
6. Different type of Browsers – chrome, Firefox etc.
7. Advance APIs- Drag & Drop, Double click etc.
8. Java Script Executor
9. Synchronization
10. Browser options.
11. Page Object Model
12. Grid & Robot Class – Remote Driver

# **Module9 – BDD Framework (Cucumber)**

Module will cover the BDD approach and Cucumber in details.

* 1. Introduction to Behaviour Driven Development (BDD)
  2. Advantages and Limitations of BDD
  3. Introduction to Gherkin & Cucumber
  4. Understanding Scenario, Scenario Template and Scenario Outline
  5. Feature Files
  6. Step Definitions
  7. Runner and Options
  8. Reporting in Cucumber

# **Module10 – Testing Automation Framework**

Module will introduce the concept of Automation framework and learners would be able to develop their own automation

* 1. Introduction to Frameworks
  2. Types of Frameworks
  3. Introduction to Data-Driven Test Framework
  4. Introduction to Keyword-Driven Test Framework
  5. Introduction to Hybrid Test Framework
  6. Building a Framework from Scratch
  7. Reporting using Allure and Extend Report

# **Module11 – API Testing**

Module will cover the concept of API, Types of API, REST/SOAP/GRAPH QL and automation library like rest assured.

* 1. What is an API
  2. Type of API SOAP/REST and GraphQL
  3. Understanding REST API in details
  4. Http Methods
  5. Http Status Codes
  6. PostMan - Request/Collection/Environments/Workspaces
  7. Rest Assured
  8. API Framework.
  9. Reporting

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# **Module12 – Mobile Testing**

Module will cover components of mobile apps, types of mobile apps, different mobile testing and different approaches to mobile testing.

* 1. Understanding Mobile Automation Testing
  2. Different Mobile Platforms
  3. Approaches to mobile testing
  4. Levels of mobile testing
  5. Life-cycle for mobile testing
  6. Mobile Testing Automation frameworks.

# **Module13 – Appium**

Module will cover Appium as mobile testing tools, Appium basics and automation of native and hybrid apps using Appium.

* 1. Introduction to Appium and Appium architecture.
  2. Appium Installation and Configuration
  3. Appium UIAutomatorviewer usage
  4. Commonly used ADB commands
  5. Starting the Appium server with advanced options
  6. First simple code in Appium with Java
  7. Understanding Appium Inspector to Find Locators
  8. Automate an app on a virtual Android device
  9. Synchronise the tests with implicit, explicit and fluent wait
  10. Automate app management such as installing, uninstalling, reset, closing the app and putting the app in background'
  11. Implementing assertions in Appium scripts.
  12. Appium interactions to push, pull file and folders
  13. Automate gestures on Android app such as touch Action, scroll, tapping, long press, swiping and orientation
  14. Automating mouse hovering like move to, double click, button down, button up, etc.
  15. Automating spinners, switch button, seek bar
  16. Automate android key events
  17. Automate drag and drop, pinch and zoom, alert gestures
  18. Hybrid and Native app features
  19. Desired capabilities for native and hybrid apps
  20. Activity Lifecycle Testing for Native App
  21. Automate a hybrid app using Java
  22. Automate a native android app using Java

# **Module14 – SQL/NOSQL**

Module will cover the basics of SQL and NoSQL Databases. In this module, you will learn, how to connect a database and query it.

1. Fundamentals of RDBMS
2. DDL (Constraints etc)
3. DML/DQL
4. SQL Joins – Self/Inner/Left/Right/Cross
5. SQL Functions
6. MongoDB
7. Find& FindwithOptions