BMS
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
Avalahalli, Doddaballapur Main Road, Bengaluru – 560064

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS

30th September 2019

Value Added Course on Selenium Testing

(31st August to 27th September 2019)

Target Audience – III Sem Students

No. of Participants – 28

SCHEDULE

DAY 1: (31st August 2019) - Module 1,2

DAY 2: (7th September 2019) - Module 3,4,5

DAY 3: (14th September 2019) - Module 6,7

DAY 4: (20th September 2019) - Module 8,9

DAY 5: (27th September 2019) - Module 10,11

Resource person – Mr. Prasoon Sanwal, from M/s. Digital Web Academy, Bengaluru.

Syllabus Covered

Module 1: Introduction to Automation Testing

In this module, we can learn about automation testing and when to automate the application. We can also look into different automation tools in the market, and we will discuss about advantages and disadvantages of automation tool.
- What is Automation testing
- Advantages of Automation testing
- Disadvantages of Automation testing

Module 2: Introduction to Selenium

In this module, we will discuss briefly about selenium tool and history of it. We will compare selenium with other tool like QTP and we can look into major components in selenium like Selenium IDE, Selenium RC, Selenium Webdriver and Selenium Grid.
- History of Selenium
- Why Selenium tool
- Differences between Selenium and other Tools
- Different components in Selenium

Module 3: Introduction to Selenium WebDriver

In this module, we will talk about webdriver and its features, and we will write a sample program for better understanding. In this module, we talk about basic features of webdriver like get and navigation functions, different types of Waits, taking screenshot etc.

- First Program on selenium
- Verify Page title in Selenium Web driver
- Navigation in selenium
- Radio button and Checkbox in Selenium Web driver
- Handling Autosuggestion
- Handling Dropdown List
- Handling File upload using Sikuli/Auto IT
- Handling Drag and Drop in Selenium
- Handling Mouse Hover,Keyword Events using Action class
- Synchronization using webdriver(Waits)
- How to take screenshot using selenium
- How to Take Multiple Screenshots
- How to capture Error message using webdriver
- Handling Multiple windows
- Handling Alert Messages.
- Handling IFrames.
- Cross Browsing using selenium
- Complete details of Dynamic XPath in Selenium
- Complete details on CSS in selenium
- How to download files in Selenium Webdriver.
- Handling WebTable
- Handling WebCalendar
- How to use Logs File in selenium
- How to use Properties File in selenium

Module 4: What is Framework?
In this module, we will discuss about frameworks.

- What is Framework
- Types of Framework
- Use of Framework

Module 5: TestNG Framework

In this module, we will discuss about TestNG, what is the advantages of testng over Junit. We will look at different annotations and how to use them in selenium, and integrating different types of reports(XSLT, Extent Reports) to testng and parallel execution of test cases and creating maven project and adding dependencies to pom.xml file and how to run maven project.

- Configure Eclipse with Selenium and TestNG
- New-Installation of TestNG
- Create First TestNG Program and Execute.
- Check reports generated by TestNG
- How to execute only failed test cases in Selenium Webdriver
- What is TestNG Listeners and How to implement TestNG Listener in Selenium Webdriver
- How to run group Test cases in Selenium using TestNG
- How to run Multiple Programs using TestNG.
- Execute Selenium Webdriver Test cases parallel using TestNG
- XSLT report generation generation using TestNg and Ant

- Building a BAT file to run tests using ANT
- Putting Dataproviders for multiple tests in a single file
- Parameterizing/Sharing single dataprovider for multiple test cases
- TestNg Maven Configuration
- Maven-surefire-report-plugin with testing
- Executing testng from maven on Command Prompt☞Generating Maven Surefire Reports
- Generating XSLT Reports with Maven
- Managing Multiple test Suites

Module 6: DataDriven Framework

In this module, we will discuss about datadriven framework with sample project and how to run deploy src to github and how to run project through Jenkins and sending reports via emails, and how to run parallel using grid.
- What is data driven Framework
- Write Excel using Apache poi/JXL
- Read Excel using Apache poi/JXL
- Goals to be achieve in data driven framework
- Creating a Core Framework
- Create Maven Project and Packages
- Creating test Cases
- Build base test
- Build Validations Functions
- Build generic Functions.
- Softassertions and extent reports
- Logging into reports
- Put Screenshots to reports
- Initiate properties files
- Build a centralized/reusable function to extract objects
- Reading Data from XLS-Parameterizing tests
- Build the utility function for reading data
- Selectively/Optionally Run tests
- Reports -XSLT, Extent Reports
- Run project with ANT/Maven/Eclipse

Module 7: Hybrid Framework

In this module, we will discuss about Hybrid framework with sample project and deciding keywords and call them from excel sheet based on the run modes and how to run deploy src to github and how to run project through Jenkins and sending reports via emails, and how to run parallel using grid
- What is data driven Framework
- Write Excel using Apache poi/JXL
- Read Excel using Apache poi/JXL
- Goals to be achieve in data driven framework
- Creating a Core Framework
- Deciding keywords
- Generic and application dependent Keywords
- Using reflection API to call keyword functions
- Create Maven Project and Packages
- Creating test Cases

- Build base test
- Build Validations Functions
- Build generic Functions.
- Soft assertions and extent reports
- Logging into reports
- Put Screenshots to reports
- Initiate properties files
- Build a centralized/reusable function to extract objects
- Reading Data from XLS-Parameterizing tests
- Build the utility function for reading data
- Selectively/Optionally Run tests
- Reports -XSLT, Extent Reports
- Run project with ANT/Maven/Eclipse

Module 8: Database Testing

In this module, we will discuss about mysql or sql server and necessary commands. We will also see that how to integrate it to selenium project using server jar files
- Install MySQL Server
- Discussion on JDBC Drivers and Other drivers
- Connection interface
- Statement and prepared statement interface
- Result set interface
- Discussion on various commands like select, delete, update, insert queries
- Using TestNG annotations to establish database connection
- Sample Connection on application and Validations on it

Module 9: Jenkins + Git + GitHub

In this module, we will briefly talk about git, github and how to push code to github and installation of Jenlkins and how to execute test scripts through Jenkins, builds fails send email to respective user
- What is Continuous Integration
- What is Jenkins and how it helps in CI
- Downloading and installing Jenkins
- Executing simple batch commands
- Scheduling time for test execution.
- Executing Selenium Project builds with ANT
- Build Triggers
- Mailing if build fails
- Configuring/Scheduling Maven Project in Jenkins
- Downloading and installing GIT
- Installing GIT and GITHUB plugins for Jenkins
- Configuring ssh host keys for GIT and Jenkins
- Git Bash commands and operations
- Uploading project to GIT using GIT Bash
- Cloning projects
- Creating branch/forks
- Configuring/Scheduling remote Git maven project in Jenkins

Module 10: Selenium Grid

In this module, we will discuss about hub and node concept, how to run parallel execution on different nodes.

- How to create json file for parallel execution.
- Introduction to Grid
- Reading Nodes and Hubs
- Deciding number of browsers on a Node
- Deciding type of browsers on Node
- Limiting number of concurrent browsers on node
- Difference between max Session and max Instance
- Configuring chrome driver and IE driver exe files on grid
- Testng configurations
- Remote WebDriver and Desired Capabilities
- Configuring JSON file format to initialize/configure hub and nodes
- Running single test on single node -serially in multiple browsers
- Running single test on single node –parallely on multiple browsers
- Running single test on multiple nodes –each node having different browser
- Can we decide node to run test?
- Running multiple tests spread across 3 nodes –one for ie, one for firefox and one for chrome
- Node Timeout
- Prioritizing the test cases
- Prioritizer Interface and Custom Prioritizer
- Sharing same web driver instance among multiple tests after prioritizing them
- Grid Coding in eclipse
- Creating a Grid sample test case
- End to end scenario building and execution on Grid -demonstration on one node
- End to end scenario building and execution on Grid -demonstration on multiple nodes on virtual machine
- End to end scenario building and execution on Grid -demonstration on multiple nodes on virtual machine and on multiple browsers

Module 11: Page Object Model

In this model, we will see how to create page object framework and page factory with sample examples.
- What is Page Object Model
- When to use POM
- Examples to POM
- POM using Page Factory
- Sample Examples

Trainer at the sessions

Prof. P Ganesh felicitating the Trainer   **Participants of the Hands-on Sessions**

The training concluded with assessments to the students followed by certificate distribution.

Dr. Aparna K
 HoD, MCA