COURSE 15: SOFTWARE TESTING

Theory	Credits: 3	3 hrs/week

Course Objectives: Student will gain an understanding of Selenium basics. Student will practice writing tests for a variety of quality intent, including code coverage, defect finding, and statistical testing using Selenium.

Course Outcomes: Upon Completion of the course, the students will be able to

1. Understand the Selenium Basics concepts
2. Know about Selenium Web Driver
3. Understand Selenium Framework
4. Learn how TestNG works
5. Learn Advanced concepts in Selenium

Unit-I:

Selenium Basics:
Software Testing, Automation Testing, Introduction to Selenium and its Components, Selenium IDE Features, Selenium Download and Installation, Creating Scripts using Firebug and Its Installation, Locator Types
Case Study: Automation Testing using Cucumber Tool with Selenium

Unit-II:

Selenium WebDriver:
Selenium WebDriver Installation with Eclipse, Handling Dropdowns, Explicit and Implicit Wait, Handling Alerts/Pop-ups, Handling Web Tables, Frames, Dynamic Elements, Robot API, AutoIT

Case Study: Automation Software Testing using Katalon Studio with Winium

Unit-III:

Selenium Framework:
Test Automation Framework: Introduction, Benefits of Automation Framework, Types of Automation framework

Case Study: Cucumber Based Automation Testing to Validate End-user Experience

Unit-IV:

Introduction to TestNG,TestNG Framework, TestNG installation, TestNG Annotations and Listeners, TestNG Example, TestNG Process Execution: Batch, Controlled Batch & Parallel
Case Study: QA Automation Testing for Media & Entertainment

Unit-V:

Advance Selenium:
Selenium Grid: Introduction, Usage of Selenium Grid, Grid1.0 vs Grid2.0, Selenium Grid architecture, How to setup Selenium Grid using command line, designing test scripts that can run on the Grid, Using DesiredCapabilities Object, Using RemoteWebDriver Object, Running a sample Test Case on the Grid
Case Study: Test Automation Using Selenium Java

Prescribed Text Books:

1. Test Automation using Selenium WebDriver with Java: Step by Step Guide by Navneesh Garg
2. Selenium WebDriver_ From Foundations To Framework by Yuzun Liang & Alex Collins
3. Absolute Beginner Java 4 Selenium Webdriver: Come Learn How to Program for Automation Testing by Rex Allen Jones II

Reference Materials on the Web/web-links:

https://www.softwaretestingmaterial.com/types-test-automation-frameworks/
https://www.guru99.com/introduction-to-selenium-grid.html#6

Faculty & Student Resources:

- YouTube: Selenium Video Tutorials
- YouTube: Selenium Full Course – Simplilearn
- YouTube: Selenium Full Course – Edureka!
- Sample Selenium Assignments/Exercises 1
- Sample Selenium Assignments/Exercises 2
- Sample Selenium Assignments/Exercises 3

COURSE 15: SOFTWARE TESTING

Practical   Credits: 1   2 hrs/week

Course Outcomes: On successful completion of this practical course, student shall be able to:

7. Perform automation testing using selenium.
8. Get exposure on Selenium framework.
9. Gain practical knowledge on Selenium web drivers .

Practical (Laboratory) Syllabus: (30 Periods)

1. Write a script to open google.com and verify that title is Google and verify that it is redirected to google.co.in

2. Write a script to open google.co.in using chrome browser (ChromeDriver)

3. Write a script to open google.co.in using internet explorer (InternetExplorerDriver)

4. Write a script to create browser instance based on browser name

5. Write a script to search for specified option in the listbox

6. Write a script to print the content of list in sorted order.

7. Write a script to print all the options. For duplicates add entry only once. Use HashSet.

8. Write a script to close all the browsers without using quit() method.

9. Write generic method in selenium to handle all locators and return web element for any locator.

10. Write generic method in selenium to handle all locators containing dynamic wait and return web element for any locator.

III. Lab References:
https://www.guru99.com/selenium-tutorial.html
https://www.javatpoint.com/selenium-tutorial
Web-links: https://youtu.be/Tu61E5mHv18