**SOFTWARE TESTING**

**Sub Code : 19CS701 Credits : 03**

**L+T+P+S : 3+0+0+0 Total Hours : 39**

Course Objectives:

**This Course will enable students to:**

1. Explain the concept of testing and the testing life cycle.
2. Use the testing frameworks, process and test management to generate the test plans.
3. Generate the test plans for a business.
4. Illustrate the use of automation in testing.
5. Perform defect management and data management.

**UNIT – I 13 Hours**

**INTRODUCTION TO TESTING – WHY AND WHAT**:

Why is testing necessary? What is testing? Role of Tester, Testing and Quality, Overview of STLC

**SOFTWARE TESTING LIFE CYCLE – V MODEL:**

SDLC vs STLC, different stages in STLC, document templates generated in different phases of STLC, different levels of testing, different types of testing: Functional Testing, API Testing, Usability Testing, Exploratory Testing, Ad-hoc Testing.Static Testing**:** Static techniques, reviews, walkthroughs

**BASICS OF TEST DESIGN TECHNIQUES:**

Various test categories, test design techniques for different categories of tests. Designing test cases using MS-Excel.

**UNIT – II 13 Hours**

**TEST MANAGEMENT:**

Documenting test plan and test case, effort estimation, configuration management, project progress management. Use of Testopia for test case documentation and test management.

**DEFECT MANAGEMENT:**

Test Execution, logging defects, defect lifecycle, fixing / closing defects. Use of Bugzilla for logging and tracing defects.

**TEST DATA MANAGEMENT:**

Test Data Management –Overview, Why Test Data Management, Test Data Types, Need for Test Data Setup, Test Data Setup Stages, Test data management Challenges. Creating sample test data using MS-Excel.

**UNIT – III 13 Hours**

**BASICS OF AUTOMATION TESTING:**

Introduction to automation testing, why automation, what to automate, tools available for automation testing.

**BASICS OF AUTOMATION TESTING USING SELENIUM**:

Introduction to Selenium, using Selenium IDE for automation testing, using Selenium Web driver for automation testing, understanding TestNG framework with Selenium Web driver for automation testing, Introduction to Maven automation tool.

**Course Outcomes:**

Upon Completion of this course students will be able to:

1. Apply the knowledge of engineering to understand the various terms and techniques used in testing domain.
2. Identify the different phases of software testing life cycle and types of testing.
3. Analyze test management and test data management processes.
4. Analyze defect management life cycle and use open source tool for defect management.
5. Design test case and formulate automation testing with demonstration of open source testing tool.

**Graduate Attributes (GA)**

**This course will map the following GA as per NBA:**

1. Engineering Knowledge
2. Design / development of solutions
3. Conduct investigation of complex problems
4. Modern tool usage
5. The engineer and society
6. Ethics
7. Life-long Learning

**TEXT BOOKS:**

1. Rex Black , “Managing the Testing Process”,2nd edition, John Wiley & Sons, 2001
2. Dorothy Graham, Erik van Veenendaal, Isabel Evans, Rex Black,” Foundations of software testing”, Cengage Learning EMEA, 2008.
3. Elfriede Dustin, “Implementing Automated Software Testing: How to Save Time and Lower Costs While Raising Quality”, Addison-Wesley Professional,2009

# REFERENCE BOOKS:

1. Paul C. Jorgensen,” Software Testing, A Craftsman’s Approach”, Third Edition, Auerbach Publications, 2008
2. Mauro Pezze, Michal Young,” Software Testing and Analysis –Process”, Principles and Techniques, Wiley India, 2009.

**E-Books / Online Resources:**

1. <https://www.softwaretestinghelp.com/selenium-tutorial-1/>
2. <http://softwaretestingfundamentals.com/software-testing-methods/>
3. <https://www.tutorialspoint.com/software_testing/software_testing_tutorial.pdf>
4. <http://docs.seleniumhq.org/docs/>
5. <http://www.seleniumhq.org/download/>

**MOOC:**

1. <http://nptel.ac.in/courses/106105150/>
2. <https://freevideolectures.com/course/3625/testing-with-selenium>

**SOFTWARE TESTING LAB**

**Sub Code : 19CS705 Credits : 1**

**Hrs / week: 02 Sem:7**

**Part A:**

1. Open flipkart.com and locate element using name. For the same write a test suite containing minimum 3 test cases using IDE record and playback.
2. Open airasia.com search flight process to automate and locate web element using id. For the same write a test suite containing minimum 3 test cases using IDE record and playback.
3. Open snapdeal.com and search for any web element using linktext. For the same write a test suite containing minimum of 3 test cases using IDE record and playback.
4. Open Mercury Tours homepage and locate web element using xpath. For the same write a test suite containing minimum 3 test cases using IDE record and play back.
5. Open https://www.google.co.in, automate the following using the specified locators in the Selenium IDE:

* Verify Google sign-in using *id*.
* Verify the working of Google Search button for the specified search using *name*.
* Verify the link to Gmail homepage in Google homepage using *linktext*.
* Verify the link to Google images homepage in Google homepage using *xpath*.

**Part B:**

1. Open[www.facebook.com](http://www.facebook.com/)application and record the following using Selenium IDE. Write test cases by locating the web elements using the CSS Selectors as mentioned below. Create a test suites containing all the test cases.

Test Case 1:

* Locate the email input box using *tag and class*.
* Verify and display the Title of website.

Test Case 2:

* Locate the password input box using *tag and id*.
* Display the name of login button of the website in the output screen.

Test Case 3:

* Locate the login button using *tag and attribute*.
* Verify the name of the forgot password field

Test Case 4:

* Locate the 'Email or Phone' and 'Password' input boxes using *tag, class and attribute*.
* Verify the value of username and password field

2. Automate the following scenario using selenium web driver script.

* Fetch Mercury Tour’s homepage.
* Verify its title.
* Print out the result of the comparison.
* Close it before ending the entire program.

3. Automate the following scenario using selenium web driver script.

* Launch the browser and open “Gmail.com”.
* Verify the title of the page and print the verification result.
* Enter the username and password.
* Click on the Sign in button.
* Close the web browser.

4. Automate the following scenario using selenium web driver script.

* Launch the Firefox browser.
* Open website, “https://www.flipkart.com”.
* Print message to display that the website is opened successfully.
* Wait for 5 seconds.
* Close the browser.

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