**COURSE PLAN**

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| --- | --- |
| Target | 50% (marks) |
| Level-1 | 40% (population) |
| Level-2 | 50% (population) |
| Level-3 | 60% (population) |

1. **Method of Evaluation**

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| --- |
| **Continuous Evaluation (Lab)** |
| Performance Records (50%) |
| Lab Records (20%) |
| Viva Voce (30%) |

1. **Passing Criteria**

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| --- | --- | --- |
| **Scale** | **PG** | **UG** |
| **Out of 10 point scale** | SGPA – “6.00” in each semester  CGPA – “6.00”  Min. Individual Course Grade  –  “C”  Course Grade  Point –  “4.0” | SGPA – “5.0” in each semester  CGPA – “5.0”  Min. Individual Course Grade  –  “C”  Course Grade  Point –  “4.0” |

\*for PG, passing marks are 40/100 in a paper

\*for UG, passing marks are 35/100 in a paper

1. **Pedagogy**

Blackboard Collaborate Live Lectures

Blackboard Collaborate Recorded Lectures

Discussion Forums

\*Experiments demonstration will be done on Eclipse IDE (on windows)

Students may perform experiment on any Eclipse IDE or IntelliJ environment hosted on their computer.

1. **References:**

|  |  |  |  |
| --- | --- | --- | --- |
| Text Books | Web resources | Journals | Reference books |
| 1. Book by Xebia Press | 1.<https://www.toolsqa.com/selenium-tutorial/>  2.<https://www.javatpoint.com/selenium-tutorial> |  | 1.Experiences of Test Automation: Case Studies of Software Test Automation - by Mark Fewster, Dorothy Graham |

**GUIDELINES TO STUDY THE SUBJECT**

**Instructions to Students:**

1. Go through the 'Syllabus' in the Black Board section of the web-site(https://learn.upes.ac.in) in order to find out the Reading List.
2. Get your schedule and try to pace your studies as close to the timeline as possible.
3. Get your on-line lecture notes (Content, videos) at Lecture Notes section.  These are our lecture notes. Make sure you use them during this course.
4. Check your blackboard regularly
5. Go through study material
6. Check mails and announcements on blackboard
7. Keep updated with the posts, assignments and examinations which shall be conducted on the blackboard
8. Be regular, so that you do not suffer in any way
9. C**ell Phones and other Electronic Communication Devices:** Cell phones and other electronic communication devices (such as Blackberries/Laptops) are not permitted in classes during Tests or the Mid/Final Examination. Such devices MUST be turned off in the class room.
10. **E-Mail and online learning tool:** Each student in the class should have an e-mail id and a pass word to access the LMS system regularly. Regularly, important information – Date of conducting class tests, guest lectures, via online learning tool. The best way to arrange meetings with us or ask specific questions is by email and prior appointment. All the assignments preferably should be uploaded on online learning tool. Various research papers/reference material will be mailed/uploaded on online learning platform time to time.
11. **Attendance:** Students are required to have minimum attendance of 75% in each subject. Students with less than said percentage shall NOT be allowed to appear in the end semester examination.

This much should be enough to get you organized and on your way to having a great semester! If you need us for anything, send your feedback through e-mail [to](mailto:abc@ddn.upes.ac.in) your concerned faculty. Please use an appropriate subject line to indicate your message details.

There will no doubt be many more activities in the coming weeks. So, to keep up to date with all the latest developments, please keep visiting this website regularly.

**RELATED OUTCOMES**

1. **The expected outcomes of the Program are:**

|  |  |
| --- | --- |
| PO1 | Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. |
| PO2 | Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. |
| PO3 | Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. |
| PO4 | Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. |
| PO5 | Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations. |
| PO6 | The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. |
| PO7 | Environment and sustainability: understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. |
| PO8 | Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. |
| PO9 | Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. |
| PO10 | Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. |
| PO11 | Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. |
| PO12 | Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. |

1. **The expected outcomes of the Specific Program are: (upto3)**

|  |  |
| --- | --- |
| PSO1 | Perform system and application programming using computer system concepts, concepts of Data Structures, algorithm development, problem solving and optimizing techniques. |
| PSO2 | Apply software development and project management methodologies using concepts of front-end and back-end development and emerging technologies and platforms. |
| PSO3 | Apply the understanding of DevOps as cultural philosophies, practices, and tools that increase the ability to deliver applications and services at high velocity. |

1. **The expected outcomes of the Course are: (minimum 3 and maximum 6)**

|  |  |
| --- | --- |
| CO 1 | Design and Build Automation Script using Selenium for eCommerce platform. |
| CO 2 | Implement TestNG Framework to integrate scripts. |
| CO 3 | Integrate Extent Report with Automation Scripts |
| CO 4 | Integration of Selenium with Jenkins for build deployment |

1. **Co-Relationship Matrix**

Indicate the relationships by1- Slight (low) 2- Moderate (Medium) 3-Substantial (high)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Program**  **Outcomes**  **Course Outcomes** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** | **PSO3** |
| **CO 1** |  |  |  |  | 3 |  |  |  |  |  |  | 1 |  | 2 | 3 |
| **CO 2** |  |  |  |  |  |  |  |  |  |  |  | 2 |  | 2 | 3 |
| **CO3** |  |  |  |  | 3 |  |  |  |  |  |  | 1 |  | 2 |  |
| **CO4** |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 3 |
| **Average** |  |  |  |  | **3** |  |  |  |  |  |  | **2** |  | **2** | **3** |

1. **Course outcomes assessment plan:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **components**  **Course Outcomes** | **Performance Records** | **Lab Records** | **Viva Voce** | **Any other** |
| **CO 1** | **■** | **■** | **■** | **□** |
| **CO 2** | **■** | **■** | **■** | **□** |
| **CO 3** | **■** | **■** | **■** | **□** |
| **CO4** | **■** | **■** | **■** | **□** |

**BROAD PLAN OF COURSE COVERAGE**

**Course Activities:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S. No.** | **Experiment No.** | **Title** | **No. of Labs** | **Remarks** |
| **1** | **Experiment-1** | Design and document test scenarios for any ecommerce web application to validate | **1** |  |
| **2** | **Experiment-2** | Build an automation script for registration and login for eCommerce platform | **1** |  |
| **3** | **Experiment-3** | Proceed to write the script similarly using Java for Registration page | **1** |  |
| **4** | **Experiment-4** | Build an automation script for searching the article and validate the searching of the article | **1** |  |
| **5** | **Experiment-5** | Build an automation script for navigating to the article details page and validate all the details for an article | **1** |  |
| **6** | **Experiment-6** | Use the data driven test automation framework to parameterize the data | **1** |  |
| **7** | **Experiment-7** | Implement the parameterized data for the automation script build in starting | **1** |  |
| **8** | **Experiment-8** | Create a data driven framework with the implementation of user journey as documented on the above steps | **1** |  |
| **9** | **Experiment-9** | Refactor your test code for Login ,Search Page and Article details page | **1** |  |
| **10** | **Experiment-10** | Execute automation script developed on Chrome and Firefox browsers | **1** |  |
| **11** | **Experiment-11** | Integrate extent report with automation scripts for result reporting | **1** |  |
| **12** | **Experiment-12** | Integrate automation scripts with Jenkins for execution on build deployment | **1** |  |

**SESSION PLAN**

|  |  |  |  |
| --- | --- | --- | --- |
| **Experiment No.** | **Title** | **Contents** | **CO Mapped** |
| **Experiment-1** | Design and document test scenarios for any ecommerce web application to validate | Functionality for a user journey from searching, selecting an article to check-out compatibility testing on multiple browser types Chrome, Firefox | CO1,  CO3 |
| **Experiment-2** | Build an automation script for registration and login for e-commerce platform | i) Download and Install JDK (Java Development Kit) from here.  ii) Install IntelliJ Idea for community edition from the official website.  ii) Download the Selenium Java Client version from here.  iv) Driver executable: Depending upon the browser you wish to execute your script in, you can choose to download its Selenium executable from here.  v) As you go down the page, various browsers like Chrome, Mozilla, Opera, and Edge drivers will be available for download to help you perform automated cross-browser testing using Selenium.  vi) Create a maven project and add the library files to the project. Selenium jars.  vii) Make a new package in the project  viii) Add new class in the project  ix) Use Inspector tools and locators like browser inspector ,firbug & firepath along with inspect element with chrome developer tools  x) Use various locator strategies to locate the elements of the login and registration page  xi) Use id/name/xpath/linktext/partiallinktext/tagname/classname/css selector  xii) Use various webdriver commands for writing scripts for Login page   * browser commands * Navigation commands * Web Element commands   xiii) Implement TestNG framework to write test scripts  xiv) Use proper assertion to validate the Login Page scripts like assert,verify and waitfor.  xv) Run the script using maven test through IntelliJ or through command prompt | CO1, CO2 |
| **Experiment-3** | Proceed to write the script similarly using Java for Registration page | ii) Use various type of assertion like assert,verify and waitfor  iii) Run the script using maven test from intelliJ or through command prompt | CO1, CO3 |
| **Experiment-4** | Build an automation script for searching the article and validate the searching of the article | Build an automation script for searching the article and validate the searching of the article -  i)Proceed to write the script for searching the article on the top of previous script when the user is successfully  ii)Use the same strategy as done in Lab1,Lab2 along with proper assertions to validate the searching of an article | CO1, CO2 |
| **Experiment-5** | Build an automation script for navigating to the article details page and validate all the details for an article | Build an automation script for navigating to the article details page and validate all the details for an article -  i) Proceed to article details page, use the same strategy as done in lab1,lab2 to build the script and after successfully validating the search and use assertion at field level to validate them correctly | CO1 |
| **Experiment-6** | Use the data driven test automation framework to parameterize the data | Use the data driven test automation framework to parameterize the data  i) Write the test class and create read data method to read the data and use the data provider of TestNG to get the data | CO2, CO3 |
| **Experiment-7** | Implement the parameterized data for the automation script build in starting | Implement the parameterized data for the automation script build in starting.  i) Create a parameterize annotations class to pass parameters and test | CO1 |
| **Experiment-8** | Create a data driven framework with the implementation of user journey as documented on the above steps | Create a data driven framework with the implementation of user journey as documented on the above steps  i) Write the class as base test which contains setting up the browser,tear down method,generate test,capture screenshot,report pass,report fail in it.  ii) Write the the reusable class as utilities as base page which contains explicit wait,click functions(clickby,type)  iii) Create a class Login Page and extend the base Page which validates the Login Page  iv) Create a class Search Page and extend the base page which contains the validates the search as created in Lab4,similarly for article details page  v) Create a class Article Details Page and extend the base page which contains the validates the search as created in Lab4,similarly for article details page  vi) Write a Logger to get the Log data | CO1, CO3 |
| **Experiment-9** | Refactor your test code for Login ,Search Page and Article details page | Refactor your test code for Login ,Search Page and Article details page based on the framework created in above step :  i) Create a TestDataReader class to get the data from the excel  ii) Write your test for Login, Search Page and Article Details page | CO1 |
| **Experiment-10** | Execute automation script developed on Chrome and Firefox browsers | Execute automation script developed on Chrome and Firefox browsers | CO1, CO4 |
| **Experiment-11** | Integrate extent report with automation scripts for result reporting | Integrate extent report with automation scripts for result reporting | CO3, CO4 |
| **Experiment-12** | Integrate automation scripts with Jenkins for execution on build deployment | Integrate automation scripts with Jenkins for execution on build deployment | CO4 |