Post Graduate Program in
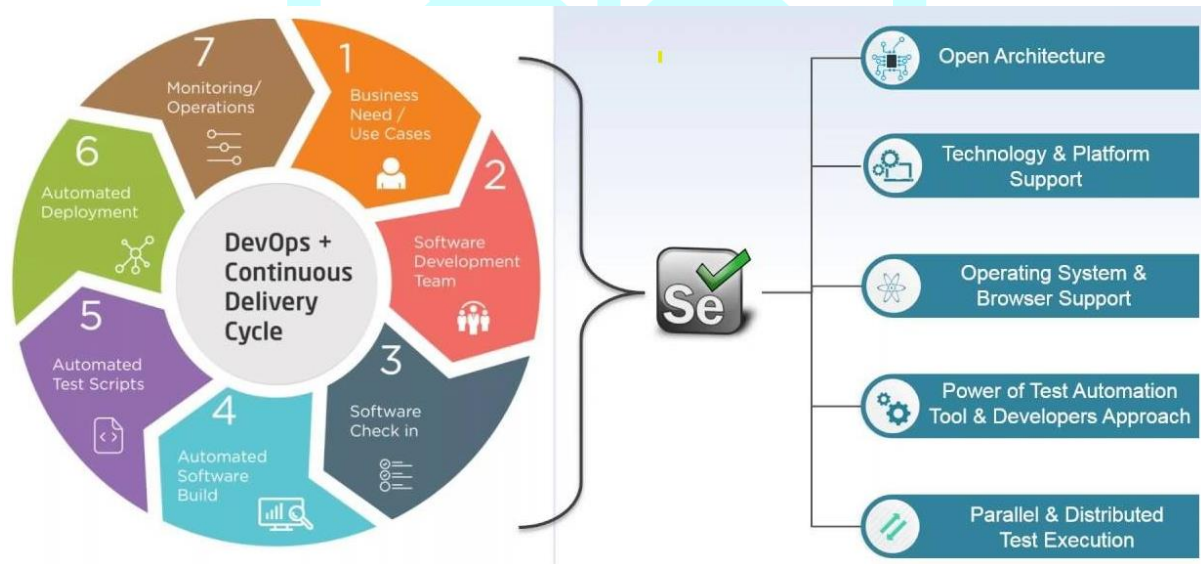
Selenium Test Automation with DevOps

ABOUT PGP in SELENIUM TEST AUTOMATION WITH DEVOPS

What Is Selenium?

Selenium is an umbrella project for a range of tools and libraries that enable and support the automation of web browsers. Selenium supports automation of all the major browsers in the market through the use of WebDriver. WebDriver is an API and protocol that defines a language-neutral interface for controlling the behavior of web browsers.

"SELENIUM IS THE BEST TEST AUTOMATION TOOL FOR YEARS"

The Selenium framework ties all of these pieces together through a user-facing interface that enables the different browser backends to be used transparently, enabling cross-browser and cross-platform automation.

Who can learn these skills?

- Selenium WebDriver automation aspirant
- Manual test engineers willing to jump start carrier in automation
- Fresh graduates looking to learn a quick new skill which has high demand in the job market
- QTP/UFT professional wanting to switch to Selenium as per testing market demand
- Anyone aspiring to learn coding and automation
- Graduates working in irrelevant industry and wants to move to software industry.

It doesn't matter if you have programming skills or not, we will make sure you learn from basics to advanced programming concepts in interesting way.

This PG program in Selenium Test Automation with DevOps has been designed to help you master all elements of Selenium Automation Testing regardless of your background. The in-depth curriculum starts from absolute basics of the subject matter and builds competencies in each through rigorous, hands on assignments and projects done under the guidance of subject matter experts.

PGP Selenium Test Automation with DevOps is a 6-month classroom program designed to develop competencies in Software Testing Concepts; Java Programming; Web Design Basics; Selenium WebDriver and Grid; design patterns for test framework developments; TestNG testing framework; behavior driven development with Cucumber; CI/CD with AWS, Docker, Git, Maven and Jenkins; and many more for future-oriented technology professionals.

PROGRAM BENEFITS

1.Industry Relevant Curriculum

This Selenium training program is uniquely designed by industry leaders and test automation experts and primary objective of having 100% employability for our students. The program builds a solid foundation by covering the most popular, widely used and in-trend tools and techniques in test automation world.

2. Corporate Partners

The program is designed, delivered and endorsed by software test automation experts and consulting organizations. Our partners are involved in curriculum design, facilitating projects, industry lectures and also suggesting pedagogical improvements.

3. Hands on Exposure

The curriculum combines academic elegance and business relevance to facilitate the participants learn basics of programming, followed by practice-oriented approach of Selenium test automation by developing various frameworks and projects using different tools and techniques.

ASEERIUM ADVANTAGES

1.Aseerium Scholar

Aseerium provides an innovative learning environment, called Aseerium Scholar, that encourages collaborative approach between the students and trainers, thus paving the way for maximizing learning effectiveness. Aseerium student activities will be entirely tracked through Aseerium Scholar app, which is both mobile cum web app. This app will enable our students and trainers to view the syllabus and course progress; assign and submit assignments/ projects; conduct assessments and quizzes; view study materials and feedbacks, etc...

2. Capstone Project

All candidates would be pursuing an application-oriented capstone project in developing Selenium DevOps project with AWS, Docker, TestNG, Maven and Jenkins. The project shall be mentored and

evaluated by faculty from Aseerium or by industry experts. The project will be presented to the faculty board as part of the requirement for successful completion of the program.

3.Industry Perspective Lectures

This is an important component of the program that complements and substantiates the learning with an applied orientation. The participants get the opportunity to listen to eminent speakers from software automation experts working for leading companies and assimilate the best practices discussed by them in their lectures.

4. Experiential Learning

This program is designed to transform candidates to industry-ready software test automation professionals through hands-on experiential learning on relevant tools. This is achieved through practice exercises, hackathons, quizzes and assignments on testing concepts, techniques, tools, frameworks, etc...

WHY CHOOSE THIS PROGRAM?

Selenium is the most preferred tools for automated web testing. It is quite obvious that the job opportunities in the respective field are quite huge.

According to the latest survey, Selenium is used by 70% of companies and also the growth of automation testing increasing year by year. It is estimated that the global automation testing market size to grow from $8.52 Billion in 2018 to $19.27 Billion by 2023. And there is an increase of 300% job postings related to Selenium.

 If you're wondering, if we are the right choice to help you upskill, we understand that career decisions need to be carefully considered and this question is natural. Here's why we think we would be a good fit:

- The program is delivered in classroom format on weekdays (Monday to Friday). The program will span over 6 months including projects and internships.
- The in-depth and industry relevant course curriculum is designed by leading academicians experienced industry practitioners.
- You'll learn by doing projects, assignments and quizzes that give you an edge over others in application-oriented and industry-relevant test automation skills.
- Mentoring sessions with industry veterans help you learn best practices and how to apply test automation techniques and principles to solve business problems.

 All these factors help to upskill in Selenium automation and build a career in the field.

Our Teachers and Mentors

The role of a teacher in shaping our talents and helping us realize our true potential cannot be underestimated. A good teacher is like a light house, guiding us through all the challenges and helping us reach our destiny.

Through our mentored learning model Aseerium's mentors and Gurus help fresh engineers and working professionals to power ahead in their career and set themselves up for success in the rapidly evolving business environments. So far, our faculty has had the chance to impact 500+ learners and help them transition to a better career.

Module I - ISTQB Foundation for Software Testing

What is ISTQB?

- About ISTQB
- About the ISTQB Foundation Level Exam

Fundamentals of Testing

- Objectives of Testing
- Quality Assurance and Testing
- Errors, Defects, and Failures
- Defects, Root Causes, Effects and Debugging
- Concept of Test Coverage in Software Testing
- Testing Principles
- Test Conditions, Test Cases, Test Procedure and Test Suites
- Test Process
- Test Planning, Monitoring and Control
- Test Analysis and Test Design
- Test Implementation and Test Execution
- Test Completion
- Test Work Products
- Traceability between the Test Basis and Test Work Products
- Factors Affect the Test Process
- The Psychology of Testing

Testing Throughout the Software Life Cycle

- Software Development Models
- Verification and Validation
- What is Agile?
- Scrum
- Test Levels: Component Testing
- Testing Levels: Integration Testing, System Testing and Acceptance Testing
- Test Levels vs Test Types

Static Testing

- Static Testing
- Review Types and Applying Review Techniques
- Success Factors for Reviews

Test Design Techniques

- Test Techniques
- Equivalence Partitioning
- Boundary Value Analysis
- Decision Table Testing
- State Transition Diagram
- Use Case Testing
- White-Box Techniques: Statement Testing and Coverage
- Decision Testing and Coverage
- Experience-based Techniques: Error Guessing
- Exploratory Testing
- Checklist-based Testing
- Choosing Test Techniques

Test Management

- Risk and Testing
- Independent Testing
- Tasks of Test Manager and Tester
- Test Strategy and Test Approach
- Test Planning
- Entry and Exit Criteria
- Test Execution Schedule
- Test Estimation
- Test Control
- Configuration Management
- Defect Management

Tool Support for Testing

- Tools Support for Testing
- Test Tools Classification
- Special Considerations for Test Execution Tools
- Benefits and Risks of Test Automation
- Effective Use of Tools

LIVE PROJECT 1 – Preparing and Executing Manual Test Cases for Web Apps

Mock Exams

- ISTQB Foundation Exam Preparatory Tests

MODULE II – Java, HTML, CSS and JavaScript

Java Foundation

- Basics of Java
- Classes and Objects
- Java Methods - Static and Non-Static Methods
- Conditional statements: IF-Else and Switch Case statement
- Loops: While Loop, Do While Loop and For Loop
- Nested Loops
- Arrays
- Exception Handling
- Packages and Access Modifiers

Java OOPS Concepts

- Encapsulation
- Inheritance
- Polymorphism
- Abstract classes and Interfaces

Java Collections, JDBC and File Readers

- Wrapper Classes, Autoboxing and Unboxing
- ArrayList, HashSet and HashMap
- Apache Log4J API and APACHE POI 4.1.0
- JDBC Database Connection
- SQL Basics

LIVE PROJECT 2 – Desktop Java Application Development

HTML

- Introduction to HTML
- Basic Structure of a Web Page
- Tags and attributes
- Text Formatting and Decoration
- Lists: Unordered and Ordered Lists
- Embedding Images and Videos
- Tables
- Forms
- Form Elements and Attributes
- Forms - Post vs. Get
- Iframes

CSS

- Introduction to CSS
- Parts and Types of a CSS Rule
- Text Properties
- Font Properties
- IDs, Classes and Spans
- Divisions - DIVs
- Margins, Padding, and Borders
- Width and Height Properties
- Display Properties
- Relative, Absolute and Fixed Positioning
- Float and Clear Properties
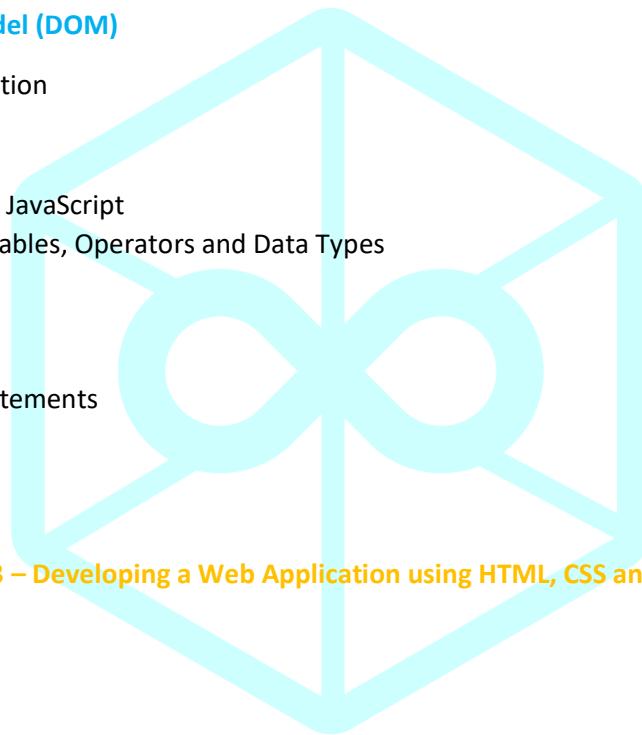- Styling Links and Tables

Document Object Model (DOM)

- DOM Manipulation

JavaScript

- Introduction to JavaScript
- Constants, Variables, Operators and Data Types
- Objects
- Strings
- Arrays
- Conditional Statements
- Loops
- Functions
- Events

LIVE PROJECT 3 – Developing a Web Application using HTML, CSS and JavaScript

MODULE III – Selenium IDE, WebDriver & Grid

Selenium Introduction

- What is Selenium?
- Running Test through Selenium IDE
- Difference in IDE, RC, WebDriver and Grid

Selenium Configurations

- configuring Java with IDE
- Configuring Selenium API
- Configuring Firefox, Chrome Browser, IE and Edge browsers
- Configuring Maven and managing Dependencies

Selenium WebDriver Basics

- WebDriver Basics
- Understanding the WebDriver Architecture

Locating Web Elements

- Intro to Locating WebElements and Locator strategies
- Locators: ID, className, Name, linkText, partialLinkText, tagName, css and xpath

Synchronization in Selenium WebDriver

- Implicit wait and Explicit wait
- Fluent wait And Its advantages

Automating Special WebElements

- Working with Select-Boxes
- Working with Date-Pickers
- Working with Web Tables

Automating JavaScript Alerts, Frames and Windows

- Automating JavaScript Alert-Boxes
- Automating JavaScript Confirmation-Boxes
- Automating JavaScript Prompt-Boxes
- Handling iFrames and Windows

Automating Mouse and Keyboard Actions

- Action and Actions classes
- Mouse Click, Right Click and Hover actions

- Drag and Drop action
- Multi-Key Operations

Screenshots and Video Recording of Test Execution

- Capturing Particular Element Screenshot
- Capturing Full Screen Screenshot
- Video Recording of test execution

Data Driven, Keyword Driven and Hybrid Testing Frameworks

- Retrieving from and writing into Excel Sheets using Apace POI
- Data driven testing
- Keyword driven testing
- Hybrid Testing

Logging Framework - log4j

- What is log4j? its usage in Selenium framework
- Understanding log4j xml file to control logging in Testcase

Page Object Model (POM) & Page Factory

- What is Page object model?
- Creating Page object Constructor in classes
- Object repository Mechanism
- Page Factory and its advantages

Database Testing with Selenium

- Connecting mySQL Database to Selenium Testcases
- Integration of Database with JDBC API
- Automating Database Tests using Selenium

AUTO IT - File Uploading & Downloading with Selenium

- Uploading File with AutoIT Selenium
- Downloading File with AutoIT Selenium

LIVE PROJECT 4 - Hybrid / Data / Keyword Driven Automation

TestNG Framework

- Why TestNG and Its Advantages
- Prioritizing the Testcases with TestNG
- Include and Exclude Mechanism to control testcases
- TestNG Annotations
- Usage of Groups functionality in TestNG
- Parameterizing from TestNG xml file
- DataProvider Annotation -Parameterizing Testcases
- Listeners Interface in TestNG framework
- Running Tests in parallel and generating Reports

Selenium Grid – Parallel Execution

- Configuring Selenium Grid and Running Tests on Multiple browsers & Nodes
- Running Parallel Test through TestNG XML Parameters and Data Providers
- Parallel Test Execution using Multi-threading

LIVE PROJECT 5 - Page Object Model with Page Factories, TestNG and Selenium Grid

Maven- Build Management tool

- Creating Maven Project and Understanding its Terminologies
- Understanding POM.xml file and its dependencies
- Importance of Surefire Plugin in executing Tests
- Integration of TestNG with Maven
- Switching the Tests with Maven profiling

GIT / GITHUB

- Creating Git config and repositories
- Pushing code to remote repository
- Staging and commit in git

Continuous Integration - Jenkins CI

- Introduction to Continuous Integration and configuring Jenkins
- Creating Jenkins projects
- Jenkins - Configuring HTML Publisher plugin for Extent Reports
- Jenkins - Parameterizing the build for browser and environment
- Jenkins - Configuring MAIL API to send test results in an automated email

LIVE PROJECT 6 – Page Object Model with GIT/GITHUB and CI – JENKINS

Behavior Driven Development (BDD) with Cucumber

- Introduction to BDD
- Creating a Feature File, Step definition and runner files
- Adding Multiple scenarios in a Feature
- Adding Parameterization
- Creating Multiple Features and Step files
- Adding List and Data tables
- Adding Tags and Hooks
- Adding TestNG Runner
- Generating Cucumber Reports
- Cucumber with Page Objects and factories using TestNG

LIVE PROJECT 7 - Cucumber BDD Framework with POM and Page Factories

Appium

- Introduction to Appium
- Appium installation on Windows and MAC OSX
- Adding Appium Dependencies
- Tapping an Element on a Real Device
- Deploying IOS Apps on Real device

MODULE IV – DevOps with Jenkins, Docker & AWS

Introduction

- What is Docker?
- Installation – on Windows, Mac and Linux

Docker Basics

- Docker Terminologies and Commands
- Pulling a Docker Image
- Creating A Docker Container
- Basic Linux Commands
- Docker Port Mapping
- Docker Volume Mapping
- Creating Docker Network & Multiple Containers
- Creating an Image & Installing Java
- Passing Environment Variables to Docker Container
- Tagging an Image & Pushing to DockerHub
- Checking Container Logs

Docker Compose

- Docker Compose - Introduction
- Docker Compose - Multiple Containers with Multiple Options

Automation Frameworks

- Docker with Selenium Page Objects and Page Factory
- Docker with Selenium TestNG - Test Class Creation
- Docker with Selenium TestNG - Test Class Parameterization
- Docker with Selenium TestNG - Test Suite Creation

Selenium Grid Infrastructure Using Docker

- Docker Selenium Grid - Compose File Creation
- Disposable Selenium Grid Infrastructure
- Test Automation Framework for Selenium Grid with Docker
- Docker Selenium Grid - Scaling Out Containers on Demand
- Docker Selenium Grid - Scaling in Containers
- Docker Selenium Grid - Connect with An External Hub / Node

Zalenium for Selenium Grid

- Zalenium - Introduction
- Running Zalenium Grid
- Zalenium - Test Execution Dashboard
- Zalenium - Run Options
- Zalenium - Docker-Compose File

Executing Tests Inside Docker Container

- Adding Maven Plugins
- Maven Package
- Running Our Tests Using Jar File
- Creating Our Own Images for Our Tests
- Creating Dockerfile With Dependencies
- Building Docker Images
- What is localhost in a container?
- Running Tests & Archiving Results by Creating A Container
- Defining Entire Infrastructure Using Docker Compose File
- Docker Compose Run with Test Script
- Test Suites Execution Using Existing Selenium Grid
- Creating Docker Compose File for Multiple Test Suites
- Running Multiple Test Suites in Parallel
- Zalenium - Docker Compose

Jenkins In Test Automation Process

- Continuous Integration & Delivery Process - Introduction
- Installing Jenkins Using Docker
- Jenkins Volume Mapping Permissions
- Jenkins - Master & Slave
- Jenkins - Connecting to An Agent
- Adding DockerHub Credentials and Adding Jenkinsfile
- Creating GitHub Account
- Pushing Our Project into GitHub
- Creating Jenkins Job for Building Docker Image
- Docker Image in DockerHub
- Running Selenium TestNG Suites
- Creating Runner Repository
- Jenkins Content Security Policy Configuration
- Test execution and Archiving Test Results
- Testing After Pulling Latest Image

Executing Tests in AWS Cloud

- AWS – Introduction and Terminologies
- AWS - Jenkins Node Requirements
- AWS - Create VPC & Subnets
- AWS - Creating AMI
- AWS - Creating User for Jenkins

- AWS - EC2 Fleet Plugin Install
- AWS - Adding Credentials in Jenkins
- AWS - Spot Fleet Request Creation
- AWS - Spot Fleet Configuration in Jenkins
- AWS - Running Our Tests & Auto Scaling
- AWS - Copy AMI to Another Region
- AWS - Cleaning Up Resources
- AWS - Billing Dashboard

LIVE PROJECT 8 – Selenium DevOps Project with Jenkins, Docker and AWS

Docker for BDD Projects

- BDD - Introduction
- BDD - Running Tests
- BDD - Creating Docker Images
- BDD - Execution Using Docker Compose
- BDD - Changes for JUnit
- BDD - JUnit - Creating Docker Image & Running Via Docker Compose

LIVE PROJECT 9 – Selenium DevOps Project with Cucumber, Jenkins, Docker and AWS

TOOLS AND LANGUAGES, YOU WILL LEARN

CAREER SUPPORT

Aseerium Accelerated Career programs

We conduct regular career programs to connect our students to industry opportunities.

Personal Career Coach

Get access to career mentoring depending upon your experience in the industry with a personal career coach. The coaches are from the software industry so the candidates benefit from their guidance on how to build a career into specific industry.

e-Portfolio & Resume Building Sessions

An e-portfolio is a snapshot of the all the projects done and skills acquired during the program that is shareable across social media channels. We also help you build your resume to highlight your test automation skill-set along with your previous professional experience, if any.

Aseerium Learning Job Board

The program provides candidates access to the Aseerium Job Board. Many organizations approach us with job opportunities monthly which are shared through the job board with our students. Our candidates get an average salary hike of 40% on a successful transition.

OUR STUDENTS ARE WORKING IN

and many more companies

ADMISSION DETAILS

Eligibility

- Bachelor's Degree in any discipline with a minimum of 50% aggregate marks in graduation or equivalent
- For applicants with exceptional qualification and/or industry experience, a relaxation in the minimum eligibility criteria may be considered

Program Format	Classroom
Program fees	INR: 60,000
Fees inclusions	Learning material, tuition fee and Aseerium Scholar access

CONTACT US
- Mobile: +91-99449 46288.
- email: learn@aseerium.com
- Web link: www.aseerium.com/selenium

Aseerium Technologies

https://www.aseerium.com