

Course Code	Course name	Course Type	Cd	L	T	P	Marks		
							MSE	Final Exam	Total
MCA-403 (B)	Software Testing and Automation	PEC	4	0	0	0	40	60	100

**Course Outcomes**

At the end of the course the student will be able to	
CO1	Explain software testing principles, processes, and defect classification in SDLC.
CO2	Analyze manual test case design techniques and conceptualize user acceptance testing.
CO3	Describe test automation concepts, frameworks, and build knowledge of automation tools.
CO4	Design proficient test automation solutions with popular tools and integration.
CO5	Evaluate advanced testing methods for assessing performance and security for different applications.

**Detailed Syllabus****Section-A**

Unit 1: Introduction to Software Testing: Overview of software testing principles and concepts, Testing process and its phases, Software development life cycle and testing, Types of software defects and their classification.

**(8 Hrs.)**

Unit 2: Manual Testing Techniques: Test case design and test coverage, Black-box testing techniques (equivalence partitioning, boundary value analysis, etc.), White-box testing techniques (statement coverage, branch coverage, etc.), User acceptance testing and usability testing.

**(8 Hrs.)**

Unit 3: Test Automation Fundamentals: Introduction to test automation and its benefits, Automation framework types (linear, modular, data-driven, keyword-driven, etc.), Selecting appropriate test automation tools, Test automation scripting and execution.

**(10 Hrs.)****Section-B**

Unit 4: Test Automation Tools and Frameworks: Introduction to popular test automation tools (e.g., Selenium, Appium), Creating and executing automated test scripts, Test data management and automation, Continuous integration, and test automation.

**(11 Hrs.)**

Unit 5: Advanced Testing Topics: Performance testing and load testing, security testing and vulnerability assessment, mobile application testing, test management and defect tracking.

**(8 Hrs.)****Textbooks**

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Software Testing: Principles and Practices	Srinivasan Desikan	Pearson Education	1st (2005)
2	Software Testing: Concepts and Operations	Ali Mili, Fairouz Tchier	Wiley	3 rd (2015)

**Reference Books**

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Fundamentals of Software Testing	ISTQB Certification	Cambridge	2nd (2017)