Semester Lecture Plan

Name of the college: Government College of Arts, Science and Commerce, Sanquelim - Goa

Name of Faculty: Yougali Parab	Subject: Computer Science	
Paper code: CSC-306 Software Quality Assurance	Program/Course: T.Y.B.Sc.	Division: A
Academic year: 2025 - 2026	Semester: VI	Total Lectures: 45

Course Objectives:

1. Understanding of the principles, practices, and tools used in Software Quality Assurance (SQA).
2. To plan, implement, and manage quality assurance processes to ensure the delivery of high-quality software.

Course Learning Outcome:

On completion of the course, students will be able to:

CO1. Remember the basic concepts & terminologies of software quality assurance.

CO2. Understand software testing and quality assurance as a fundamental component of software life cycle.

CO3. Apply Quality assurance activities using modern software tools.

CO4. Analyze prepared test plans and schedules for quality assurance project.

Month	Lectures From:	To:	No. of lectures allotted	Topic, Subtopic to be covered	Learning outcome	ICT Tools	Reference books
December	01/12/2025	06/12/2025	03	Introduction to Software Quality Assurance Overview of Software Quality Assurance	**Define Software Quality Assurance** and explain its importance in software development.	Laptop, LCD Projector, PowerPoint Presentation	Foundations of Software Testing" Dorothy Graham, Rex Black
December	08/12/2025	13/12/2025	03	Importance of SQA in the Software Development Life Cycle (SDLC)	Explain why SQA is essential in every phase of SDLC,	Laptop, LCD Projector, PowerPoint Presentation	Agile Testing: A Practical Guide for Testers and Agile Teams
December	15/12/2025	20/12/2025	03	Role of SQA in achieving business goals	Identify the role of SQA	Laptop, LCD Projector, PowerPoint Presentation	Agile Testing: A Practical Guide for Testers and Agile Teams
December	22/12/2025	27/12/2025	02	Types of Testing (Unit, Integration, System, Acceptance, Regression)	Understand types of testing	Laptop, LCD Projector, PowerPoint Presentation	Foundations of Software Testing" Dorothy Graham, Rex Black
December-January	29/12/2025	03/01/2026	00			Laptop, LCD Projector, PowerPoint Presentation	Agile Testing: A Practical Guidefor Testers and Agile Teams
January	05/01/2026	10/01/2026	03	Black Box vs. White Box Testing Manual vs. Automated Testing	Analyse Black Box vs. White Box Testing	Laptop, LCD Projector, PowerPoint Presentation	Foundations of Software Testing" Dorothy Graham, Rex Black

Month	Start Date	End Date	No.	Topic	Learning Outcome	Teaching Aids	Reference Book
January	12/01/2026	17/01/2026	03	Test Planning and Documentation Test Planning and Strategy Test Case Design and Execution Traceability Matrix	Write Test Planning and Documentation and test case design strategy	Laptop, LCD Projector, PowerPoint Presentation	Agile Testing: A Practical Guide for Testers and Agile Teams
January	19/01/2026	24/01/2026	03	Automated Testing Tools Introduction to Automated Testing		Laptop, LCD Projector, PowerPoint Presentation	Foundations of Software Testing" Dorothy Graham, Rex Black
				Popular Automated Testing Tools (e.g., Selenium, JUnit, TestNG)	Understand Automated Testing Tools		
January	26/01/2026	31/01/2026	03	Performance Testing Introduction to Performance Testing		Laptop, LCD Projector, PowerPoint Presentation	Agile Testing: A Practical Guide for Testers and Agile Teams
				Load, Stress, and Scalability Testing	Analyze Performance Testing		
February	02/02/2026	07/02/2026	03	Tools for Performance Testing (e.g., JMeter)		Laptop, LCD Projector, PowerPoint Presentation	Foundations of Software Testing" Dorothy Graham, Rex Black
					Understand Tools for Performance		
February	09/02/2026	14/02/2026	03	Defect Life Cycle and Tracking Defect Life Cycle		Laptop, LCD Projector, PowerPoint Presentation	Agile Testing: A Practical Guide for Testers and Agile Teams
				Defect Identification and Reporting	Explain defect life cycle,defect tracking tools		
				Defect Tracking Tools (e.g., Jira, Bugzilla)			

February	16/02/2026	21/02/2026	03	Continuous Integration and Continuous Deployment (CI/CD) Introduction to CI/CD	**Define** Continuous Integration (CI) and Continuous Deployment/Delivery (CD).	Laptop, LCD Projector, PowerPoint Presentation	Agile Testing: A Practical Guide for Testers and Agile Teams
February	23/02/2026	28/02/2026	03	Integration of Testing in CI/CD Jenkins and other CI/CD tools	**Describe** how continuous testing improves software quality and reduces release risks.	Laptop, LCD Projector, PowerPoint Presentation	Foundations of Software Testing" Dorothy Graham, Rex Black
March	02/03/2026	07/03/2026	03	Software Quality Metrics and Measurement Key Quality Metrics (e.g., defect density, test coverage)	**Calculate and interpret** basic quality metrics (e.g., defect density, test coverage).	Laptop, LCD Projector, PowerPoint Presentation	Agile Testing: A Practical Guide for Testers and Agile Teams
March	09/03/2026	14/03/2026	03	Importance of Measurement in SQA Continuous Improvement in SQA	Understand Importance of Measurement in SQA	Laptop, LCD Projector, PowerPoint Presentation	Foundations of Software Testing" Dorothy Graham, Rex Black
March	16/03/2026	21/03/2026	03	Emerging Trends in SQA Shift-Left Testing	**Apply** Shift-Left testing principles to improve software quality and delivery speed.	Laptop, LCD Projector, PowerPoint Presentation	Agile Testing: A Practical Guide for Testers and Agile Teams

| March | 23/03/2026 | 28/03/2026 | 03 | DevOps and SQA
Artificial
Intelligence in
Software Testing | Recognize the impact of AI-driven testing on software quality, speed, and reliability. | Laptop, LCD Projector, PowerPoint Presentation | Foundations of Software Testing"
Dorothy Graham, Rex Black |
| March | 30/03/2026 | 31/03/2026 | 03 | Revision | | Laptop, LCD Projector, PowerPoint Presentation | |

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	From:	To:					
December-January Week 1	29/12/2025	03/01/2026	02	Test Planning: Task: Develop a test plan for a given software project.	Understand the Purpose of Test Planning	Laptop, LCD Projector, PowerPoint Presentation	Foundations of Software Testing" Dorothy Graham, Rex Black
January Week 2	05/01/2026	10/01/2026	02	Deliverables: Test plan document outlining test objectives, scope, resources, schedule, and test cases.	Understand the Purpose of Test Planning	Laptop, LCD Projector, PowerPoint Presentation	Agile Testing: A Practical Guide for Testers and Agile Teams
January Week 3	12/01/2026	17/01/2026	02	Test Case Design: Task: Create test cases for a specific feature of a given application.	Understand Test Case Design Principles	Laptop, LCD Projector, PowerPoint Presentation	Foundations of Software Testing" Dorothy Graham, Rex Black
January Week 4	19/01/2026	24/01/2026	02	Deliverables: Test case document with detailed steps, expected results, and preconditions.	Write Clear and Detailed Test Cases	Laptop, LCD Projector, PowerPoint Presentation	Agile Testing: A Practical Guide for Testers and Agile Teams
January Week 5	26/01/2026	31/01/2026	02	Manual Testing: Task: Execute a set of test cases manually on a provided application.	Understand Manual Testing Concepts	Laptop, LCD Projector, PowerPoint Presentation	Foundations of Software Testing" Dorothy Graham, Rex Black
February Week 6	02/02/2026	07/02/2026	02	Deliverables: Test execution report with details of pass/fail status, issues encountered, and suggestions for improvement.	Identify and Report Defects	Laptop, LCD Projector, PowerPoint Presentation	Agile Testing: A Practical Guide for Testers and Agile Teams
February Week 7	09/02/2026	14/02/2026		Automated Testing: Task: Automate a set of test cases using a selected testing tool (e.g., Selenium, JUnit).	Understand Automated Testing Concepts	Laptop, LCD Projector, PowerPoint Presentation	Agile Testing: A Practical Guide for Testers and Agile Teams

February Week 8	16/02/2026	21/02/2026		Deliverables: Automated test scripts, test execution report, and a comparison of manual vs. automated testing results.	Understand Automated Testing Concepts	Laptop, LCD Projector, PowerPoint Presentation	Foundations of Software Testing" Dorothy Graham, Rex Black
February Week 9	23/02/2026	28/02/2026		Defect Reporting and Tracking: Task: Identify defects during testing and report them using a bug tracking tool (e.g., Jira, Bugzilla). Deliverables: Bug reports with detailed steps to reproduce, screenshots, assessments.	Identify and Classify Defects Use Bug Tracking Tools Effectively	Laptop, LCD Projector, PowerPoint Presentation	Agile Testing: A Practical Guide for Testers and Agile Teams
March Week 10	02/03/2026	07/03/2026		Performance Testing: and severity/priority Task: Conduct performance testing on a web application (e.g., load testing, stress testing).	Understand Performance Testing Concepts	Laptop, LCD Projector, PowerPoint Presentation	Foundations of Software Testing" Dorothy Graham, Rex Black
March Week 11	09/03/2026	14/03/2026		Deliverables: Performance test plan, execution results, and recommendations for improvement.	Plan Performance Test Scenarios	Laptop, LCD Projector, PowerPoint Presentation	Agile Testing: A Practical Guide for Testers and Agile Teams

March Week 12	16/03/2026	21/03/2026	02	Continuous Integration/Continuous Deployment (CI/CD) Testing: Task: Implement automated testing within a CI/CD pipeline. Deliverables: CI/CD pipeline configuration, automated tests integration, and a report on the benefits of CI/CD in testing.	Understand CI/CD Concepts Integrate Automated Tests into CI/CD Pipelines	Laptop, LCD Projector, PowerPoint Presentation	Foundations of Software Testing" Dorothy Graham, Rex Black
March Week 13, Week 14 Week 15	23/03/2026	28/03/2026	02	Revision		Laptop, LCD Projector, PowerPoint Presentation	