

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		L	T	P	L	T	P	Total
MCA42	Software Testing and Quality Assurance	3	1	--	3	1	--	4
		Examination Scheme						
		ISE		MSE		ESE		
		10	30	100 (60% Weightage)				

Pre-requisite Course Codes	MCA12	
Course Outcomes	CO1	Solve the problems using Software Testing techniques and Approaches.
	CO2	Apply various Software testing Techniques to find bugs in software
	CO3	Understand Test Automation
	CO4	Apply various Software Quality Assurance Techniques to ensure the quality in software.

Module No.	Unit No.	Topics	Ref.	Hrs.
1		Basics of Software Testing	1,2	3
	1.1	Humans, Errors & Testing, Correctness Vs Reliability,		
	1.2	Testing & Debugging, Principles of Testing, Test Metrics		
2		Testing in the Software Life Cycle & Test Levels	1,2	6
	2.1	The General V-Model, W-Model, Component Test, Integration Test, System Test,		
	2.2	Acceptance Test, Generic types of Testing-Functional, Non Functional		
	2.3	Testing software structure, Regression Testing		
3		Static Testing	1,2	5
	3.1	Structured Group Examinations - Reviews,		
	3.2	Static Analysis -- Control Flow Analysis & Data Flow Analysis		
	3.3	Tools for Static Testing		
4		Dynamic Testing	1,2	8
	4.1	Black Box Testing- Equivalence Class Partitioning, Boundary Value Analysis,		
	4.2	State Transition Test, Cause Effect Graphing and Decision Table Technique, User Documentation Testing, Domain Testing,		
	4.3	White Box-Statement Coverage, Branch Coverage, Test of Conditions, Path Coverage		
5		Test Management	1,2	6
	5.1	Test Planning, Test Management,		
	5.2	Test Process, Test Reporting		
	5.3	Incident Management – Test Log, Incident Reporting,		

		Classification, Status		
6		Test automation	1,2	
	6.1	Design and Architecture for Automation,		6
	6.2	Test Automation-Design and Architecture for Automation,		
	6.3	Generic Requirements for test Tool/Framework,		
	6.4	Criteria for selecting test tools, Testing of Object Oriented Systems		
7		Software Quality	3,4	2
	7.1	Software Quality Standards, SQA Planning: SQA plan, Organizational Level Initiatives		
8		Software Measurement & Metrics	3,4	6
	8.1	Measurement during Software Life Cycle Context		
	8.2	Defect Metrics, Metrics for software Maintenance & Requirements		
	8.3	Measurement Principles		
	8.4	Case study for Identifying Appropriate Measures & Metrics for Projects		
		Total		42

References:

- [1] Andreas Spillner ,”Software Testing Foundations”, Tilo Linz, Hans Schaefer, Shoff Publishers and Distributors, fourth edition
- [2] Aditya P. Mathur ,”Foundations of Software Testing”, Pearson Education, second edition
- [3] KshirasagarNaik&PriyadarshiTripathi,“Software Testing & Quality Assurance Theory & Practice”, Wiley Student Edition.
- [4] Nina S. Godbole , “Software Quality Assurance Principles & Practice”, Alpha Science Publication, third edition