GUJARAT TECHNOLOGICAL UNIVERSITY
Syllabus for Integrated MSc, 7th Semester
Branch: Computer Science
Subject Name: Software Testing and Quality Assurance
Subject Code: 1370302

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory Marks		Practical Marks		
L	T	P	C	ESE(E)	PA (M)	PA (I)	ESE (V)	
3	0	2	4	70	30	20	30	150

Content:

Sr. No.	Content	Teaching Hours	Module Weightage
1.	**Introduction**: Software testing process, objectives, testing techniques, software testing life cycle, concept of testing, types of errors, verification and validation mechanism, concepts of software reviews, code inspection and code walk through, testing of component-based system, mobile application testing.	7	17%
2.	**Testing Methods and Processes**: Software testing methods, testing fundamentals, test case design, white box testing and its types, black box testing and its types, software testing strategies, unit testing, integration testing, validation testing, system testing, test planning, Budgeting and scheduling.	8	20%
3.	**Testing Measurement**: Software testing metrics, concept and developing testing metrics, types of metrics, defect management process, defect reporting, and defects for process improvement.	8	20%
4.	**Quality Assurance**: Software quality, factors affecting software quality, quality models, software quality estimation, quality metrics, quality assurance, SQA activities, software reviews, formal technical reviews, quality control quality management and SQA plan, cause-effect diagrams, Run charts, Total quality management, Software reliability, The ISO 9001 quality standard, six sigma, informal reviews	10	25%
5.	**Industrial Practices**: Quality costs, quality cost measurement for decision making, manual vs automatic testing, Introduction to QTP, QTP framework.	7	18%

Reference Books:

1. KshirasagarNaik and PriyadarshiTripathy, Software Testing and Quality Assurance: Theory and Practice, John Wiley & Sons, Inc.
2. Roger S. Pressman, “Software Engineering – A Practitioner’s Approach”, McGrow Hill Education, 20097
3. William Perry, “Effective Methods for Software Testing”, John Wiley & Sons, New York, 1995.

4. Louise Tamres, "Software Testing", Pearson Education Asia, 2002
5. Robert V. Binder, "Testing Object-Oriented Systems-Models, Patterns and Tools", Addison Wesley, 1999.
6. CemKaner, Jack Falk, Nguyen Quoc, "Testing Computer Software", Second Edition, Van Nostrand Reinhold, New York, 1993
7. Boris Beizer, "Black-Box Testing – Techniques for Functional Testing of Software and Systems", John Wiley & Sons Inc., New York, 1995.

Course Outcome:

CO-1	Explain and apply knowledge of key concepts of testing, quality and testing tools
CO-2	Identify the various test cases flow of software and determine the complexity of software
CO-3	Design test cases and developed test suit, set environmental variable for carrying out manual and automatic testing
CO-4	Manage software defects and risk within a software project
CO-5	Work effectively in profile of software tester Quality Assurance and control officer