
SOFTWARE QUALITY ASSURANCE AND TESTING**Course Code:** 13IT2113**L P C**
4 0 3**Pre requisites:** Software Testing Methodologies.**Course Outcomes:**

At the end of the course, a student will be able to

CO 1: Design a framework for quality assurance.

CO 2: Evaluate a Software Testing Environment.

CO 3: Classify different software testing techniques.

CO 4: Design the testing process.

CO 5: Test specialized systems.

UNIT - I**Software quality assurance Framework and Standards****SQA Frame work:** What is Quality? Software Quality Assurance. Components of Software quality Assurance.**Software Quality Assurance Plan :** Steps to develop and implement a Software quality Assurance Plan.**Standards:** ISO9000, CMM, CMMI, PCMM, Malcom Balridge, 3 Sigma, 6 Sigma**UNIT- II****Software Quality Assurance Metrics:** Product Quality metrics, In-Process Quality metrics, Metrics for Software Maintenance. Examples of Metric Programs.

Software quality indicators, Fundamentals in Measurement Theory

Building Software Testing Environment : Writing Policy for software testing, Economics of testing, Building a structured approach to software testing .**Software Testing process:** Defects Hard to find, Functional and structured testing, Workbench concept, Customising the software testing process, testing tactics check list.**UNIT- III****Software Testing Techniques:** Black-Box , Boundary value, Bottom-up, Branch Coverage, Cause- Effect graphing, CRUD, database, Exception, Gray BOX, Histogram, Inspections, JADs, Pareto Analysis,

Prototyping, random Testing, Risk based Testing, Regression Testing, Structured Walkthrough, Thread testing, Performance Testing, White-Box Testing.

Software Testing Tools: Taxonomy of Testing tools, Methodology to evaluate automated testing tools, Load Runner, Win Runner and Rational Testing Tools, Java testing Tools, JMetra, JUNIT and Cactus.

UNIT- IV

Testing Process PART I: Advantages of following a process, Cost of computer testing, Seven step software Testing Process, Define the scope of testing, Developing the test plan, Verification Testing.

Testing Process PART II: Validation Testing, Analyzing and reporting test results, Acceptance and operational Testing, Post Implementation Analysis.

UNIT- V

Testing Specialized Systems and Applications: Testing Client/Server System, Testing COTS and Contracted Software, Testing security, Testing Data Warehouse.

Text Books:

1. William E.Perry , *Effective Methods for Software Testing*, 3rdEdition, Wiley Publications, 2006.
2. Mordechai Ben-Menachem, Garry S. Marliss, *Software Quality*, 1stEdition , Thomson Learning Publication, 2008.

References:

1. Kshirasagar Naik, Priyadarhi Thripathy, *Software Testing and Quality Assurance Theory and Practice*, 1st Edition, Wiley, 2008.

Web references :

<http://docs.seleniumhq.org>