

Course code: CS-621 T**Course Title: A1. Software Quality Assurance & Testing**

Total Credit: 2

Marks: 50 (UA: 40 + IA: 10)

Periods: 3 per week (50 Minutes each)

Learning Objectives

- To understand the basic view of software quality and quality factors.
- To understand the Software Quality Assurance (SQA) architecture and the details of its components.
- To understand of how the SQA components can be integrated into the project life cycle.
- To be familiar with the software quality infrastructure

Learning Outcomes

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

- Utilize the concepts in software development life cycle.
- Demonstrate their capability to adopt quality standards.
- Assess the quality of software product.
- Apply the concepts in preparing the quality plan & documents.

Course Outline

Unit – 1: Introduction to software Quality and Assurance, The software quality challenge, Software quality, Software quality factors, Management and its role in software quality assurance, Components of SQA, The components of the software quality assurance system – overview, Pre-project Software Quality Components, Contract review, Development and quality plans.

Unit – 2 : SQA Components in the Project Life Cycle and Strategies, Integrating quality activities in the project life cycle, Reviews, Software testing – strategies

Unit – 3 : Software Testing – Implementation: Software Quality Implementation, Assuring the quality of software maintenance components, Assuring the quality of external participants' contributions, CASE tools and their effect on software quality

Unit – 4 : Software Quality Infrastructure Components Procedures and work instructions, Staff training and certification, Corrective and preventive actions, Documentation control, Software Quality Metrics, Software Quality metrics, Cost of Quality

Unit– 5: Test and Tutorial**Reference Books :**

- 1) Quality and Management Standards (ISO, CMMi, ISO/IEC, IEEE, EIA).
- 2) Kshirsagar Naik and Priyadarshi Tripathy, Software Testing & Quality Assurance- Theory and Practice, Wiley Student edition
- 3) William E. Perry, Effective Methods for Software Testing, WILEY, . 3rd Edition
- 4) Alan C. Gillies, "Software Quality: Theory and Management", International Thomson Computer Press, 1997.
- 5) M G Limaye, Software Testing, Tata McGraw-Hill Education, 2009