

# Software Testing and Quality Management

## UNIT - I

**Testing Software:** Software Testing and its importance, Module Testing, Integration Testing, Top-down versus bottom-up testing, Mixed testing (03).

**Software Faults and Failures:** Types of faults, Origins of Software Defects, The Cost of Repairing Defects (02).

**Verification and Validation:** Verification Testing, Coding standards, Walk-Through, Formal Inspection (02), Verifying Requirements, Verifying Functional Design, Validation Test Criteria, Design metrics (03).

Lectures: 10

## UNIT - II

**Testing Techniques and Strategies:** White-Box Testing: Flow graph notation, Cyclomatic Complexity, Control Structure and Loop Testing, Dataflow Testing (04).

**Black-Box Testing:** Graph-based testing methods, Equivalence partitioning, Boundary Value Analysis (03), UNIT Testing, Integration Testing, System Testing, Exhaustive Testing (04).

Lectures: 11

## UNIT - III

**Building Tests and Test Plans:** Designing and Creating Tests, Maintaining Checklists, White-box Test Cases and Test Procedures, Test Data Selection and Outputs, Black-box test cases and test procedures, Planning and Creating Test Plans (04).

**Testing Specialized Systems and Applications:** Graphical User Interface (GUI) Testing, Usability Testing, Client/Server Architectures and Web Testing, Testing OO Systems, Volume and Stress Testing (04).

**Testing Measurements:** Software Size and Complexity, Function Point Analysis (04).

Lectures: 12

## UNIT - IV

**Quality Assurance and Standards:** Quality and Quality Assurance (QA), Techniques of Quality Assurance, Software Testing and QA (04).

**Software Development Models,** Quality metrics (03), Configuration Management, Quality management models (ISO, SPICE, IEEE, and CMM) (05).

Lectures: 12