IV/IV B. TECH. SECOND SEMESTER
SOFTWARE TESTING METHODOLOGIES (Elective- III)

Course Code: CS 8T2C	**Credits: 3**
Lecture: 3 periods/ week	**Internal assessment: 30 Marks**
Tutorial: 1period/week	**Semester end examination: 70 Marks**

Prerequisites:Basic understanding of the software development life cycle (SDLC). basic understanding of software programming using any programming language.

Course Objectives:

1. To study fundamental concepts in software testing
2. To discuss various software testing issues and solutions in software unit test, integration and system testing.
3. To expose the advanced software testing topics, such as object-oriented software testing methods.

Course Learning Outcomes:

At the end of this course student will:

CO1) List a range of different software testing techniques and statergies and be able to apply specific(automated) unit testing method to the projects.

CO2) Distinguish characterstics of structural testing methods.

CO3) Demonstrate the integration testing which aims to uncover interaction and compatibility problems as early as possible.

CO4) Discuss about the functional and system testing methods.

CO5) Demonstrate various issues for object oriented testing.

Syllabus:

Unit-I

A Mathematical Context:
A Perspective on Testing, Examples
Functional Testing: Boundary Value Testing, Equivalence Class Testing, Decision Table-Based Testing, Retrospective on Functional Testing.

Unit-II

Structural Testing:
Path Testing- DD-Paths, Test Coverage Metrics, Basis Path Testing, **Dataflow Testing-** Define/Use Testing, Slice-Based Testing,
Retrospective on Structural Testing- Gaps and Redundancies, Metrics for Method Evaluation.

Unit-III

Integration Testing:
Levels of Testing, Integration Testing- A Closer Look at the SATM System, Decomposition-Based Integration, Call Graph-Based Integration, Path-Based Integration.

Unit – IV

System Testing-
Threads, Basic Concepts for Requirements Specification, Finding Threads, Structural Strategies for Thread Testing, Functional Strategies for Thread Testing SATM Test Threads, System Testing Guidelines

Unit-V

Object-Oriented Testing:
 Issues in Object-Oriented Testing, Class Testing, Object-Oriented Integration Testing, GUI Testing, Object-Oriented System Testing.

Learning Resources:

Text Book:
Paul C. Jorgensen, Software Testing: A Craftsman's Approach, 3rd Edition, CRC
    Press, 2007.
References:
Boris Beizer, Software Testing Techniques, Dreamtech, 2009