SOFTWARE TESTING METHODOLOGY

VI Semester: IT

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
AITC18	Core	3	1	-	4	30	70	100
Contact Classes: 45	Tutorial Classes: 15	Practical Classes: Nil				Total Classes:60		

Prerequisite: There is no prerequisite to take this course

I. COURSE OVERVIEW:

The course will describe the basic techniques for testing and tools that can be used to perform auto- matic and manual testing for generating and validating test data. It will provide deeper insights into domain testing, path testing, transaction flow testing and transition testing. This course is used inthe applications of banking system, library management, hotel management etc.

II. COURSE OBJECTIVES:

The students will try to learn:

I	The scope and essentiality of software testing concepts, taxonomy and dichotomiesrelated to software testing.
II	The techniques used to test a path, branch, statement coverage of a given softwaremodule.
III	The techniques and principles in software testing related to transaction flow andstatement testing.
IV	The hypothesis on the optimized software module used in solving complexproblems.

III. COURSE OUTCOMES:

After successful completion of the course, students should be able to:

CO 1	**Explain** the concept of software testing objectives, process criteria, strategies and methods for effective testing.	Understand
CO 2	**Classify** the key issues and applications in transaction flow testing and data flow testing strategies.	Understand
CO 3	**Make use of** domains and paths in order to identify nice and ugly domains in domain testing	Apply
CO 4	**Translate** the path expressions using logic based testing to KV charts and its specifications.	Understand
CO 5	**Develop** a defect free module using path products and pathexpressions.	Apply
CO 6	**Explain** the importance of good state graph and bad state graphrelated to transition testing for effective transition testing.	Understand

IV. COURSE SYLLABUS:

MODULE-I: INTRODUCTION TO TESTING (10)

Introduction: Purpose of testing, dichotomies, model for testing, consequences of bugs, taxonomy of bugs. Flow graphs and path testing: Basics concepts of path testing, predicates, path predicates and achievable paths, path sensitizing, path instrumentation, application of path testing.

MODULE-II: TRANSACTION FLOW TESTING (10)

Transaction flow testing: Transaction flows, transaction flow testing techniques, dataflow testing, basics of dataflow testing, strategies in dataflow testing, application of dataflow testing.

MODULE-III: LEVELS OF TESTING (09)

Domain testing: Domains and paths, nice and ugly domains, domain testing, domains and interfaces testing, domain and interface testing, domains and testability.

Logic based testing: Overview, decision tables, path expressions, kv charts, and specifications.

MODULE-IV: PATH PRODUCTS (08)

Paths, path products and regular expressions: Path products and path expression, reduction procedure, applications, regular expressions and flow anomaly detection.

MODULE-V: TRANSITION TESTING (10)

State, state graphs and transition testing: State graphs, good and bad state graphs, state testing, testability tips.

IV. TEXT BOOKS:

Boris Beizer, "Software Testing Techniques", Dreamtech Press, 2nd Edition, 2003.

V. REFERENCE BOOKS:

1. P.C.Jorgenson, "Software Testing: A Craftmen's Approach", Auer bach Publications, 3rd Edition, 2013.
2. Perry, "Effective Methods of SoftwareTesting", John Wiley, 2nd Edition,1999.
3. P.NageswaraRao, "SoftwareTesting Concepts and Tools", Dream Tech Press, 2nd Edition, 2007.

VI. WEB REFERENCES:

1. http://www.qatutorial.com/?q=Software_Test_Metrics
2. http://softwaretestingfundamentals.com/MODULE-testing/
3. http://qainsights.com/challenges-in-test-automation/
4. http://www.softwaretestinghelp.com/manual-and-automation-testing-challenges/