SOFTWARE TESTING METHODOLOGY

VII Semester: CSE / IT

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
AIT008	Core	3	1	-	4	30	70	100
Contact Classes: 45	Tutorial Classes: 15	Practical Classes: Nil				Total Classes: 60		

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 in the applications of banking system, library management, hotel management etc.

II. OBJECTIVES:

The course should enable the students to:

I	The scope and essentiality of software testing concepts, taxonomy and dichotomies related 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 and statement 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 graph related to transition testing for effective transition testing.	Understand

IV. SYLLABUS:

UNIT-I	INTRODUCTION TO TESTING	Classes: 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.

UNIT-II	TRANSACTION FLOW TESTING	Classes: 08

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

UNIT-III	LEVELS OF TESTING	Classes: 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.		
UNIT-IV	**PATH PRODUCTS**	**Classes: 08**
Paths, path products and regular expressions: Path products and path expression, reduction procedure, applications, regular expressions and flow anomaly detection.		
UNIT-V	**TRANSITION TESTING**	**Classes: 10**
State, state graphs and transition testing: State graphs, good and bad state graphs, state testing, testability tips.		

Text Book:

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

Reference Books:

1. P. C. Jorgenson, "Software Testing: A Craftmen's Approach", Auerbach Publications, 3rd Edition, 2013.
2. Perry, "Effective Methods of Software Testing", John Wiley, 2nd Edition, 1999.
3. P. Nageswara Rao, "Software Testing Concepts and Tools", DreamTech Press, 2nd Edition, 2007.

Web References:

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

E-Text Books:

1. http://www.softwaretestinghelp.com/practical-software-testing-new-free-ebook-download/
2. http://www.guru99.com/software-testing.html
3. http://www.fromdev.com/2012/04/8-best-software-testing-books-every-qa.html
4. https://onlinecourses.nptel.ac.in/noc16_cs16/preview

MOOC Course

1. https://www.udacity.com/course/software-testing--cs258
2. https://www.utest.com/search-result/tag/Test%20Cycles
3. https://www.edureka.co/software-testing

Course Home Page: