CSE 4017	Software Testing	CT C LT 3
Prerequisite:	Software Engineering	

Objectives:

- **Apply the fundamental knowledge of testingtechniques appropriate to the problems**
- **To provide an overview of finding bugs**
- **To understand and develop well-structuredtesting techniques.**

Expected Outcomes:

At the end of the course, students should able to

- Test one problems/ computation using various testing techniques
- Remove errors and bugs from a program.

Student Outcomes (SO):

a. An ability to apply the knowledge of mathematics, science and computing appropriate to the discipline

b. An ability to analyze a problem, identify and define the computing requirementsappropriate to its solution.

c. An ability to design, implement and evaluate a system / computer-based system,process, component or program to meet desired needs

l. An ability to apply mathematical foundations, algorithmic principles and computer science theory in the modelling and design of computer-based systems (CS)

Unit No	Unit Content	No. of hours	SOs
1	**Overview of Testing:** Software Testing Definition, Debugging, Testing vs debugging.Purpose of testing, Dichotomies, model for testing, consequences of bugs, taxonomy of Bugs.	4	a,b, c
2	**Flow graphs and Path testing:** Basics concepts of path testing, predicates, path predicates and achievable paths, path sensitizing, path instrumentation, application of path testing. **Transaction Flow Testing:** Transaction flows, transaction flow testing techniques.	6	a, b, c
3	**Dataflow testing**:-Basics of dataflow testing, strategies in dataflow testing, application of dataflow testing. **Domain Testing**:-domains and paths, Nice & ugly domains, domain testing, domains and interfaces testing, domain and interface testing, domains and testability.	6	a, b, c
4	**Paths, Path products and Regular expressions: P**ath products & path expression, reduction procedure, applications, regular expressions & flow anomaly detection.Enumerated data type – Union.	6	a, b, c
5	**Logic Based Testing:** Overview, decision tables, path	6	a, b, c

	expressions, kv charts, specifications.		
6	**Guest Lecture on Contemporary Topics**	**2**	
	Total Lecture:	**30**	

Mode of Teaching and Learning: Flipped Class Room, One Lecture to be videotaped, Digital/Computer based models to augment lecture for practice/tutorial, 2 hours lectures by industry experts on contemporary topics

Mode of Evaluation and assessment:

The assessment and evaluation components may consist of unannounced open book examinations, quizzes, student's portfolio generation and assessment, and any other innovative assessment practices followed by faculty, in addition to the Continuous Assessment Tests and Final Examinations.

Text Books:

1.	Software Testing techniques - BarisBeizer, Dreamtech, second edition.
2.	Software Testing Tools – Dr.K.V.K.K.Prasad, Dreamtech.

Reference Books:

1.	Art of Software Testing – Meyers, John Wiley.
2.	The craft of software testing - Brian Marick, Pearson Education.

Recommendation by the Board of Studies on	18.06.2020
Approval by Academic council on	
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