DELHI TECHNOLOGICAL UNIVERSITY

DEPARTMENT OF SOFTWARE ENGINEERING

B.Tech. 3rd YEAR SYLLABUS

Course code: Course Title	Course Structure			Pre-Requisite
	L	T	P	
SE301: Software Testing	3	0	2	Software Engineering

Course Objective: To understand software testing concepts and applications.

S. NO	Course Outcomes (CO)
CO1	Explain basics of software testing process, limitations, and the V-shaped life cycle model.
CO2	Apply various types of testing to ensure software functionality and reliability.
CO3	Demonstrate various functional testing techniques.
CO4	Implement structural and object-oriented testing methods.
CO5	Investigate automated testing tools and various testing activities.

S. NO	Contents	Contact Hours
UNIT 1	**Introductory concepts:** Verification &Validation Terminologies like Goals, Role, Objectives, Limitations, Approaches & Applicability.	4
UNIT 2	**Software Testing:** Testing Process, Limitations of Testing, Testing activities. Levels of Testing: Unit Testing, Integration Testing, System Testing, Debugging, Domain Testing, Regression Testing, Stress Testing, Slice based testing.	8
UNIT 3	**Verification Testing:** Verification Methods, SRS Verification, Software Design Document Verification, Code Reviews, User Documentation Verification, Software Project Audits. Functional Testing techniques: Boundary Value Analysis, Equivalence Class Testing, Decision Table Based Testing, Cause Effect Graphing Technique.	8
UNIT 4	**Structural Testing:** Path testing, DD-Paths, Cyclomatic Complexity, Graph Metrics, Data Flow Testing, Mutation testing. Object Oriented Testing: Class Testing, GUI Testing.	8
UNIT 5	**Testing Activities:** Unit Testing, Levels of Testing, Integration Testing, System Testing, Debugging. **Software Testing Tools Taxonomy:** Methodology to evaluate automated testing. Using tools: Load Runner, Win runner and Rational Testing Tools, Java Testing Tools, JMeter, JUNIT Cactus and other recent tools.	8
UNIT 6	**Advanced Topics on Testing:** Prioritizing the Test-cases, Testing Web Applications, Automated Test Data Generation.	6
	TOTAL	42

REFERENCES		
S.No.	**Name of Books/Authors/Publishers**	**Year of Publication / Reprint**
1	Yogesh Singh, "Software Testing", Cambridge University Press India Private Limited, 1st Edition.	**2012**
2	Paul C. Jorgensen, "Software Testing: A Craftsman's Approach", Auerbach Publications, 4th Edition.	**2013**
3	Louise Tamres, "Introducing Software Testing", Pearson Education, 1st Edition.	**2002**
4	Boris Beizer, "Software Testing Techniques", Wiley India, 2nd Edition.	**2002**