

PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

(Autonomous)

Kanuru, Vijayawada-520007

Department of COMPUTER SCIENCE AND ENGINEERING (AI&ML)

III B. Tech–II Semester CSE (AI&ML)

Software Testing Methodologies

Course Code	20AM4601D	Year	III	Semester	II
Course Category	PEC	Branch	CSE(AI&ML)	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	Software Engineering
Continuous Internal Evaluation	30	Semester End Examination	70	Total Marks	100

Course Outcomes		
Upon successful completion of the course, the student will be able to		
CO1	Describe fundamental concepts and principles of software testing methodologies.	L2
CO2	Apply verification and validation process to actively identify and resolve various bugs in the system.	L3
CO3	Apply static and regression testing to assess and enhance the software's quality to continuous improvement.	L3
CO4	Analyze software testing, software quality and the significance of testing tools in assessing and optimizing the software testing process.	L4

[illegible]

Syllabus		
Unit No.	Contents	Mapped CO
I	Introduction to Software Testing: Introduction, Software testing Definitions, Evolution of Software Testing, software Testing-Myths and Facts, Goals of Software Testing. Model for Software Testing, Software Testing as a Process. Software Testing Terminology and Methodology: Software Testing Terminology, Bugs Concepts, Life cycle of Bugs, Testing Principles, Software Testing Life Cycle(STLC).	CO1
II	Verification and Validation: Verification & Validation Activities, Verification of Requirements, Verification of High level and low level designs, verifying code, Validation. Validation Activities: Unit Validation Testing, Integration Testing, Function Testing, System Testing, Acceptance Testing	CO1, CO2
III	Static Testing: Introduction, Types of static Testing, Inspections, Structured walkthrough, technical Reviews. Regression Testing: Progressive Vs Regression Testing, objectives, Regression testing types, defining regression test problem.	CO1, CO3, CO4
IV	Software Quality Management: Introduction, Software Quality, Broadening the Concept of Quality, Quality Cost, Benefits of Investment on Quality, Quality Control and Quality Assurance. Quality Management, Project Management, Quality Factors, Methods of Quality Management.	CO1, CO3, CO4
V	Testing Process Maturity Models: Need for Test Process Maturity, Measurement and Improvement of a Test Process, Test Process Maturity Models. Automation and Testing Tools: Need for automation, categorization of testing tools, selection of testing tools, Cost incurred tools.	CO1, CO3, CO4

Learning Resources	
TextBooks	
1. Software Testing: Principles and Practices, Naresh Chauhan, first edition, 2010, Oxford University Press.	
ReferenceBooks	
1. Software Testing, Techniques and Applications ,Arunkumar Khannur, Pearson. 2. Software Testing Techniques ,Boris beizer ,2 nd edition ,Dreamtech. 3. Software Testing: A Craftsman's Approach, Paul C. Jorgensen, Third Edition, 2015,Auerbach publication.	
e-Resources&otherdigitalmaterial	
1. SoftwareTesting: https://onlinecourses.nptel.ac.in/noc23_cs38/preview 2. SoftwareTesting: https://nptel.ac.in/courses/106105150 3. SoftwareTesting: https://archive.nptel.ac.in/courses/106/101/106101163/ 4. Software Testing Methodologies by Edureka: https://www.youtube.com/watch?v=6rNgPXz9A9s 5. Software Testing Methodologies: https://www.youtube.com/watch?v=I5kpYJJBZk&list=PLdEdh7ef30CtIIsOL1owY-XQIKYektw 6. Software Testing: https://www.youtube.com/watch?v=E2t5XbWwj7I&list=PLL34mf651faM_nn8uKInwbQPw5zSh_F84 7. Introduction to Software Testing by Sanjay Rayadurgam https://www.coursera.org/learn/introduction-software-testing	

