Course Details

Program(s)	Subject Name	Academic Session, Semester	Subject Code & Credit	
B.Tech.	Software Engineering	Autumn, 2025 (5th Semester)	CS-31001	**Cr-4, L – T – P 3 – 1 – 0**

Note: 4 Credits = 15x4= 60 Hours (as per National Credit Framework, 1 credit = 15 Hours)

Subject Faculty: Dr. Hitesh Mohapatra

Activity 3

Sl. No	Questions	CO's	Bloom's Taxonomy
1.	Define the following software testing types with one real-world example for each: a) Unit Testing b) Integration Testing c) Regression Testing	CO1	Knowledge
2.	List and briefly explain the key objectives of software testing. How do these objectives contribute to product quality?	CO2	Knowledge
3.	Identify the differences between white box and black box testing. Mention one tool commonly used for each and its purpose.	CO5	Knowledge
4.	Explain how Top-Down Testing and Bottom-Up Testing work with the help of simple block diagrams. In what scenarios is one preferred over the other?	CO6	Comprehension
5.	Describe how functional testing and performance testing differ in their goals, execution methods, and results. Use a web application as an example to illustrate your explanation.	CO5	Comprehension
6.	You are part of a QA team for an e-commerce platform. • Design a black box test case suite for the login functionality using Equivalence Partitioning and Boundary Value Analysis techniques. • Include input conditions, expected results, and test status (pass/fail logic).	CO6	Application
7.	Given a code snippet that calculates a student's grade based on marks, apply White Box Testing techniques (like condition coverage and path coverage). • Identify possible control paths and draw a Control Flow Graph (CFG). • Suggest at least 3 test cases based on your analysis.	CO5	Application

8.	Consider a large object-oriented application with thousands of classes. • Analyze why regression testing becomes complex in such systems. • Suggest how software configuration management (SCM) tools and test automation can reduce risk and cost in this scenario.	CO4	Analysis
9.	Compare and contrast testing strategies used in: • Traditional applications • Web applications • Object-oriented systems: Provide an analytical chart summarizing the strengths and limitations of testing each type.	CO5	Analysis
10.	Your team is analyzing a software product after several testing cycles. • Using product metrics like defect density, mean time to failure, and test coverage, perform a team-based metrics analysis. • Evaluate the overall product readiness. • Submit your findings with visual aids such as a bar graph or radar chart, and conclude whether the software is ready for release based on your team's reasoning and metric outcomes.	CO6	Evaluation