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)

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Activity 2

Sl. No	Questions	CO's	Bloom's Taxonomy
1.	Evaluate how the application of a well-defined SQA plan or models like ISO 9000, SEI-CMM, or People CMM could have prevented or mitigated the issues.	CO1	Evaluation
2.	Discuss which Verification and Validation techniques (e.g., formal reviews, test planning) would have been most effective.	CO2	Evaluation
3.	Reflect on how you would embed quality processes from the early stages of requirement analysis to final validation.	CO5	Evaluation
4.	You're a part of a team tasked with designing a WebApp for digital attendance and feedback for remote learning in universities. Using the principles of Requirement Engineering, perform the following tasks: A. Elicit and document user requirements from three perspectives: students, faculty, and administrators (minimum 2 requirements each). B. Develop: • A Level 1 Data Flow Diagram (DFD) showing key processes and data stores. • An Entity Relationship Diagram (ERD) showing key entities like Students, Courses, Feedback, Attendance. C. Create a partial SRS document using IEEE SRS standards. Include: • Introduction • Functional Requirements • Non-functional Requirements • Interface Requirements	CO6	Synthesis

	D. Sketch a high-level system architecture diagram for the WebApp. Mention which components would be handled on the client side vs. server side.		
5.	Choose a public software system (e.g., Indian Railway Reservation System, GST portal, or any banking mobile app). Assume you are part of the SQA team brought in after the system faced issues like frequent crashes, poor user experience, and data validation failures. Perform the following: A. Critically evaluate the likely failures in SQA planning, requirement clarity, and V&V techniques that led to poor quality delivery. B. Recommend how a formal SQA Plan should have been framed, referring to: o Verification and Validation (V&V) strategies o SQA Framework components o Application of either ISO 9000, SEI-CMM, or People CMM C. Draw a Quality Assurance Flow Diagram from requirements to deployment for this project. D. Finally, write a brief comparative assessment: Which SQA model (ISO 9000 / SEI-CMM / People CMM) is more suitable for public service platforms and why?	CO5	Evaluation
6.	Assume you're developing a Library Management System for a university, which must handle book loans, due dates, fine calculations, and notifications to students. Perform the following tasks: A. Create a Decision Table to model the logic for calculating fines based on different return scenarios (e.g., late return, holiday, damaged book). B. Translate 3–4 user needs into corresponding functional requirements for the SRS. C. Construct a Data Flow Diagram (DFD Level 0) and identify external entities, processes, and data stores.	CO6	Application

	D. Using any tool or template, prepare a 1–2-page draft SRS covering the requirements, business rules, and assumptions.		
7.	You are assigned to audit the quality assurance process of a recently completed e-Governance software project that is experiencing post-deployment failures. Perform the following analytical tasks: A. Identify and explain three key issues that might have occurred due to poor Verification and Validation (V&V) practices. B. Analyze the gaps between what was documented in the SQA plan (you can create a sample plan snippet) and what should have been done according to SEI-CMM Level 3 practices. C. Prepare a Cause-Effect (Fishbone/Ishikawa) Diagram showing contributing factors for poor software quality in the project (e.g., missing test cases, rushed deadlines, lack of peer reviews). D. Recommend practical remedial actions that the team should take before the next release cycle, using SEI-CMM principles.	CO5	Analysis