

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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COURSE MODULE

2026-2027

Department: Computer Science and Engineering				Academic Year: 2026-2027			
Course Code	Course Title	Core/Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
BCS501	Software Engineering with Project Management	Core	Basics of Software Engineering	3	-	-	45
Course Learning Objectives: This course (BCS501) will enable students to:							
- CLO 1. Outline software engineering principles and activities involved in building large software programs. Identify ethical and professional issues and explain why they are of concern to Software Engineers. - CLO 2. Describe the process of requirement gathering, requirement classification, requirement specification and requirements validation. - CLO 3. Recognize the importance of Project Management with its methods and methodologies. - CLO 4. Identify software quality parameters and quantify software using measurements and metrics. List software quality standards and outline the practices involved.							
MODULE 1							Contact Hours
Software and Software Engineering: The nature of Software, The unique nature of WebApps, Software Engineering, The software Process, Software Engineering Practice, Software Myths. Process Models: A generic process model, Process assessment and improvement, Prescriptive process models: Waterfall model, Incremental process models, Evolutionary process models, Concurrent models, Specialized process models. Unified Process, Personal and Team process models							10
MODULE 2							
Understanding Requirements: Requirements Engineering, Establishing the ground work, Eliciting Requirements, Developing use cases, Building the requirements model, Negotiating Requirements, Validating Requirements. Requirements Modeling Scenarios, Information and Analysis classes: Requirement Analysis, Scenario based modeling, UML models that supplement the Use Case, Data modeling Concepts, Class-Based Modeling. Requirement Modeling Strategies : Flow oriented Modeling, Behavioral Modeling.							12
MODULE 3							
Agile Development: What is Agility?, Agility and the cost of change. What is an agile Process?, Extreme Programming (XP), Other Agile Process Models, A tool set for Agile process. Principles that guide practice: Software Engineering Knowledge, Core principles, Principles that guide each framework activity.							10

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MODULE 4	
Introduction to Project Management: Introduction, Project and Importance of Project Management, Contract Management, Activities Covered by Software Project Management, Plans, Methods and Methodologies, Some ways of categorizing Software Projects, Stakeholders, Setting Objectives, Business Case, Project Success and Failure, Management and Management Control, Project Management life cycle, Traditional versus Modern Project Management Practices. Project Evaluation: Evaluation of Individual projects, Cost-benefit Evaluation Techniques, Risk Evaluation	10
MODULE 5	
Software Quality: Introduction, The place of software quality in project planning, Importance of software quality, Defining software quality, Software quality models, product versus process quality management. Software Project Estimation: Observations on Estimation, Decomposition Techniques, Empirical Estimation Models.	10
Course Outcomes: At the end of the course the student will be able to: At the end of the course the student will be able to: CO 1. Differentiate process models to judge which process model has to be adopted for the given scenarios. CO 2. Derive both functional and nonfunctional requirements from the case study. CO 3. Analyze the importance of various software testing methods and agile methodology. CO 4. Illustrate the role of project planning and quality management in software development. CO 5. Identify appropriate techniques to enhance software quality	
Assessment Details (both CIE and SEE) The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/course if the student secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.	
Textbooks: 1. Roger S. Pressman: Software Engineering-A Practitioners approach, 7th Edition, Tata McGraw Hill. 2. Bob Hughes, Mike Cotterell, Rajib Mall: Software Project Management, 6th Edition, McGraw Hill Education, 2018.	



ATME

College of Engineering



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Reference:

1. Pankaj Jalote: An Integrated Approach to Software Engineering, Wiley India.
2. "Software Engineering: Principles and Practice", Hans van Vliet, Wiley India, 3rd Edition, 2010.

Weblinks and Video Lectures (e-Resources):

https://onlinecourses.nptel.ac.in/noc20_cs68/preview

https://onlinecourses.nptel.ac.in/noc24_mg01/preview

