

Software Engineering

Course Code	20CS3501	Year	III	Semester	I
Course Category	PCC	Branch	CSE	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	OOP
Continuous Evaluation :	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes

Upon successful completion of the course, the student will be able to

CO1	Understand the fundamentals of software engineering	L2
CO2	Apply various lifecycle activities for project development	L3
CO3	Apply Risk and Quality Management Strategies for project development	L3
CO4	Analyze the various requirements, design and Testing Techniques to select the appropriate techniques for the software project development	L4

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	√													
CO2	√									√				
CO3										√			√	
CO4		√							√	√				

Syllabus		Mapped CO
Unit No.	Contents	
I	Introduction to Software Engineering: The Nature of Software, The changing Nature of Software, Software Process, Software Engineering Practice, Software Development myths. Process models: Perspective process Models, Unified Process Model, Agile process model	CO1,CO2
II	Requirements engineering: Requirements engineering, Establishing the Groundwork, Eliciting Requirements, Developing Use Cases, Building the Analysis Model, Negotiating requirements. Agile Requirements: User Stories, Backlog Management. Requirements Analysis: Scenario Based Modeling.	CO1,CO2,CO4
III	Design Engineering: Design process, Design concepts, The Design Model. Architectural design: Software architecture, Architectural Design, Agility and Architecture.	CO1,CO2,CO4
IV	Software Testing Strategies: A strategic approach to software testing, Test strategies for conventional software, Validation Testing, System Testing, The art of Debugging. Testing Conventional Applications: Software testing fundamentals, White-Box testing, Basis path testing, Control structure testing, Black-Box testing.	CO1,CO2,CO4
V	Risk management: Reactive vs. Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan. Software Quality Assurance: Elements of SQA, SQA Tasks, Goals, and Metrics, Statistical Software Quality Assurance, Software Reliability, The ISO 9000 Quality Standards, The SQA Plan.	CO1,CO3,CO4

Learning Resources

Text Books

1. Software Engineering: A Practitioner's Approach, Roger S. Pressman, Bruce R. Maxim, Eighth edition, 2015, McGraw Hill, International Edition
2. Robert C. Martin ,Agile Software Development, Principles, Patterns, and Practices Alan Apt Series (2011)

References

1. Software Engineering, Ian Sommerville, Seventh edition, 2004, Pearson, India
2. Software Engineering, K.K. Agarwal & Yogesh Singh, 2007, New Age International Publishers.
3. Software Engineering Principles and Practice, Waman S Jawadekar, 2004, McGraw-Hill.
4. Fundamentals of Software Engineering, Rajib Mall, Fourth edition, 2009, PHI.
5. Succeeding with Agile : Software Development Using Scrum, Pearson (2010)

e-Resources & other digital material

1. https://onlinecourses.nptel.ac.in/noc20_cs68
2. <https://thedigitalprojectmanager.com>