PVP 23

PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

(Autonomous)

Kanuru, Vijayawada-520007

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (AI&ML)

III B Tech – I Semester

Software Engineering

Course Code	23AM4501A	**Year**	III	**Semester**	I
Course Category	PEC	**Branch**	CSE (AI&ML)	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	Introduction to programming
Continuous Internal Evaluation	30	**Semester End Evaluation**	70	**Total Marks**	100

	Course Outcomes	
Upon Successful completion of course, the student will be able to		
CO1	Describe fundamental concepts, and software life cycle models to distinguish various approaches used in structured software development.	**L2**
CO2	Apply software project management techniques, requirement analysis methods, and estimation models to plan and manage software development projects effectively.	**L3**
CO3	Utilize software design principles, testing strategies, and CASE tools to enhance system quality, maintainability, and development efficiency.	**L3**
CO4	Analyze software requirements, testing techniques, and maintenance strategies using CASE tools to improve software quality and lifecycle management.	**L4**

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3: Substantial,2: Moderate,1: Slight)

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PSO1**	**PSO2**
CO1	**2**												
CO2	**3**												
CO3	**3**												
CO4		**3**									**2**		

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Syllabus		
Unit No	**Contents**	**Mapped CO**
I	**Introduction:** Evolution, Software development projects, Emergence of software engineering, Notable changes in software development practices. **Software Life Cycle Models:** Basic concepts, Waterfall model and its extensions, Rapid application development, Agile development model, Spiral model**.**	CO1, CO2
II	**Software Project Management:** Software project management complexities, Responsibilities of a software project manager, Project planning, Metrics for project size estimation, Project estimation techniques, Basic COCOMO, Risk management. **Requirements Analysis and Specification:** Requirements gathering and analysis, Software Requirements Specification (SRS)	CO1, CO2 C04
III	**Software Design**: Overview of the design process, Cohesion and Coupling, Layered arrangement of modules, Approaches to software design. **Agility:** Agility and the Cost of Change, Agile Process, Extreme Programming (XP), Scrum (Text Book 2) **User Interface Design:** Characteristics of good user Interface, Types of user Interfaces, Golden rules.	CO1, CO3.
IV	**Coding And Testing:** Coding, Software documentation, Testing, Unit testing, Black-box testing, White-Box testing, Debugging, Integration testing, System testing. **Software Reliability and Quality Management:** Software reliability. Software quality, Software quality management system, ISO9000, SEI Capability maturity model.	CO1, CO3, CO4
V	**Computer-Aided Software Engineering (Case):** CASE and its scope, CASE environment, CASE support in the software life cycle, other characteristics of CASE tools, Towards second generation CASE Tool and Architecture of a CASE Environment. **Software Maintenance**: Characteristics of software maintenance, Software reverse engineering, Software maintenance process models and Estimation of maintenance cost. **Software Reuse**: Introduction, Basic issues in any reuse program, A reuse approach.	CO1, CO3 CO4

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Learning Resources
Text Books
1. Fundamentals of Software Engineering, Rajib Mall, 5th Edition, 2018, PHI Learning. 2. Software Engineering: A Practitioner's Approach, Roger S. Pressman, 9th Edition, 2019, McGraw-Hill Education.
References
1. Software Engineering, Ian Sommerville, 10th Edition, 2015, Pearson Education. 2. Software Engineering: Principles and Practices, Deepak Jain, 1st Edition, 2013, Oxford University Press
E-Recourses and other Digital Material
1. https://nptel.ac.in/courses/106/105/106105182/ 2. https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01260589506387148827_shared/overview 3. https://infyspringboard.onwingspan.com/web/en/app/search/learning?lang=en&q=software%20engineering%20software%20development&p=0&f=%7B%7D