COURSE CONTENT

SOFTWARE PROJECT MANAGEMENT

I Semester: CE / CSD / CSE / CSM / ECE / EEE / ME

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
24X0526	Foundation	3	0	0	3	40	60	100
Contact Classes: 45	Tutorial Classes: Nil	Practical Classes: Nil				Total Classes: 45		

Prerequisites: Basic knowledge of Software Engineering and Programming principles.

Course Overview:

Software Project Management (SPM) addresses planning, scheduling, monitoring, and controlling software development projects. The course emphasizes practical strategies for improving productivity, ensuring quality, and aligning development with business goals. It provides a deep understanding of software economics, life cycle models, team dynamics, process workflows, metrics, and automation. Students also explore modern techniques including iterative development and model-based architectures for managing large-scale software projects effectively.

Course Objectives: The students will try to learn

1. Traditional software management and economic aspects of software development.
2. Modern strategies for improving software cost-efficiency, quality, and team performance.
3. Different phases in the software life cycle and associated artifacts.
4. Planning, workflows, milestones, and iterative development processes.
5. Metrics, automation, and future trends in software project management through real-world case studies.

Course Outcomes: After Completion of the Course, Students should be able to

1. Understand trad optional software development models and analyze the economic factors influencing software project planning.
2. Apply modern techniques to improve software development processes, team performance, and quality assurance.
3. Identify and utilize life cycle phases and software artifacts essential for project documentation and control.
4. Develop effective project plans using workflows, milestones, and cost/schedule estimation techniques.
5. Evaluate and apply metrics for project control and tailor software processes to meet project-specific needs using real-world case insights.

UNIT - I: Conventional Software Management & Software Economics, The Waterfall Model, Conventional software management performance issues, Introduction to software economics, Factors influencing software cost, Pragmatic software cost estimation

UNIT - II: Improving Software Processes & Transitioning to Modern Approaches Reducing software product size, improving software processes and team effectiveness, Role of automation in cost and quality control, Peer inspections for quality assurance, Principles of modern software management, Transitioning from conventional to iterative processes.

UNIT - III: Software Development Life Cycle & Process Artifacts Phases: Inception, Elaboration, Construction, Transition Types of artifacts: Management, Engineering, Programmatic Role and significance of artifacts in software development.

UNIT - IV: Software Architecture, Workflows & Planning Overview of model-based software architecture (management view), Software process workflows and iteration workflows, Major and minor milestones, Work breakdown structure (WBS), Cost and schedule estimation, Iteration planning fundamentals.

UNIT - V: Project Control, Process Tailoring & Case Study Core software project metrics, Management and quality indicators, tailoring the software process, Future trends in project management. Case Study: CCPDS-R (Command Center Processing and Display System–Replacement)

REFERENCE BOOKS:

1. Software Project Management, Bob Hughes and Mike Cotterell, Tata McGraw-Hill Edition.
2. Software Project Management, Joel Henry
3. Software Project Management, Walker Royce, Pears, Pearson Education..
4. Software Project Management in Practice, Pankaj Jalote, Pearson Education, 2005.

ELECTRONIC RESOURCES:

1. https://www.geeksforgeeks.org/software-engineering/software-engineering-software-project-management-spm/
2. https://www.tutorialspoint.com/software_engineering/software_project_management.htm?utm
3. https://www.udemy.com/course/software-engineering-and-project-management/?utm_source=chatgpt.com

MATERIALS ONLINE:

1. Course template
2. Tutorial question bank
3. Tech talk and Concept Video topics
4. Open-ended experiments
5. Definitions and terminology
6. Assignments

7. Model question paper – I
8. Model question paper – II
9. Lecture notes
10. E-Learning Readiness Videos (ELRV)