



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal - 500 043, Hyderabad, Telangana

COURSE CONTENT

SOFTWARE PROJECT MANAGEMENT								
VI Semester: CSE (DS) / CSE (CS)								
VII Semester: CSE / IT								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
ACSD25	Elective	L	T	P	C	CIA	SEE	Total
		3	-	-	3	40	60	100
Contact Classes: 48	Tutorial Classes: Nil	Practical Classes: Nil			Total Classes: 48			
Prerequisite: Fundamentals of Computer Networks and Operating Systems								

I. COURSE OVERVIEW:

This course provides a comprehensive understanding of the principles and practices of Software Project Management, covering the complete software project lifecycle from initiation to closure. It introduces project planning, scheduling, cost estimation, risk management, quality assurance, and project monitoring techniques essential for successful software development. The course also emphasizes effective team management, leadership, communication, and professional ethics in managing software projects. Students will gain the knowledge and skills required to plan, execute, monitor, and deliver software projects efficiently while meeting quality, time, and cost objectives.

II. COURSE OBJECTIVES:

The students will try to learn:

- I. The fundamentals, principles, and practices of software project management.
- II. Software projects effectively using appropriate life cycle models, scheduling, and resource allocation techniques.
- III. The ability to estimate software project cost, effort, and duration using standard estimation models.
- IV. Equip students with skills to identify, analyze, and manage risks, quality, and changes throughout the software project life cycle.
- V. Enhance managerial and leadership skills required for effective team management, communication, and successful project completion.

III. COURSE OUTCOMES:

At the end of the course students should be able to:

- CO1 Understand the fundamentals and importance of software project management.
- CO2 Apply project planning and scheduling techniques effectively.
- CO3 Estimate software project cost, effort, and manage risks.
- CO4 Monitor and control software projects using quantitative metrics.
- CO5 Manage software teams and successfully close projects.

IV. COURSE CONTENT:

MODULE – I: INTRODUCTION TO SOFTWARE PROJECT MANAGEMENT (09)

Introduction to software project management, software projects and their characteristics, project stakeholders, software project success and failure, role of a software project manager, management spectrum, software project management framework, overview of project life cycle models, selection of appropriate life cycle model, project initiation and feasibility study.

MODULE – II: SOFTWARE PROJECT PLANNING (10)

Project planning objectives, planning process, software scope definition, work breakdown structure (WBS), project scheduling fundamentals, activity sequencing, network-based scheduling. Gantt charts, PERT and CPM techniques, resource allocation and leveling, project cost estimation fundamentals, overview of estimation techniques.

MODULE – III: SOFTWARE COST ESTIMATION AND RISK MANAGEMENT (10)

Software cost estimation models, algorithmic models (COCOMO, COCOMO II), function point analysis, use case point estimation, effort and schedule estimation.

Risk management process, risk identification, risk assessment and prioritization, risk mitigation strategies, risk monitoring and control.

MODULE – IV: PROJECT MONITORING, CONTROL AND QUALITY MANAGEMENT (10)

Project monitoring and control techniques, earned value analysis, schedule control and cost control, project reviews and audits, configuration management, change management process, software quality management, quality planning, quality assurance and quality control, software metrics for project management.

MODULE – V: TEAM MANAGEMENT AND PROJECT CLOSURE (09)

Project organization structures, team formation and staffing, motivation and leadership styles, communication management, conflict management, human resource management in software projects, knowledge management, project documentation, project closure activities, post-project evaluation, lessons learned, ethical and professional issues in software project management.

V. TEXT BOOKS:

1. Bob Hughes, Mike Cotterell, Rajib Mall, Software Project Management, 6th Edition, McGraw-Hill Education.

VI. REFERENCE BOOKS:

1. K. K. Aggarwal and Yogesh Singh, *Software Engineering*, 4th Edition, New Age International Publishers.
2. Roger S. Pressman and Bruce R. Maxim, *Software Engineering: A Practitioner's Approach*, 8th Edition, McGraw-Hill.
3. Pankaj Jalote, *Software Engineering – A Precise Approach*, Wiley India.
4. Walker Royce, *Software Project Management: A Unified Framework*, Addison-Wesley.

VII. ELECTRONIC RESOURCES:

1. <https://nptel.ac.in/courses/106/106/106106184/>
2. https://www.tutorialspoint.com/software_project_management/index.htm
3. <https://www.coursera.org/courses?query=software%20project%20management>
4. <https://www.researchgate.net>
5. <https://www.pmi.org>

VIII. MATERIALS ONLINE

- 1 Course Outline Description
- 2 Tutorial question bank
- 3 Tech talk topics
- 4 Assignments
- 5 Definitions and terminology
- 6 Open ended experiments
- 7 Model question paper-I
- 8 Model question paper-II
- 9 Lecture notes
- 10 Power point presentations
- 11 ELRV videos
- 12 Real-life Examples
- 13 Case Studies
- 14 Complex Engineering Problems