



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal - 500 043, Hyderabad, Telangana

## COURSE CONTENT

SOFTWARE PROJECT MANAGEMENT								
II Semester: CSE								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
BCSE32	Elective	L	T	P	C	CIA	SEE	Total
		3	-	-	3	40	60	100
Contact Classes:48	Total Tutorials: Nil	Total Practical Classes: Nil			Total Classes: 45			
Prerequisites: Computer organization and Architecture, Advanced algorithms, Cryptography								

### I. COURSE OVERVIEW:

The main goal of software development projects is to create a software system with a predetermined functionality and quality in a given time frame and with given costs. For achieving this goal, models are required for determining target values and for continuously controlling these values. This course focuses on principles, techniques, methods & tools for model-based management of software projects. Assurance of product quality and process adherence (quality assurance), as well as experience-based creation & improvement of models (process management).

### II. COURSE OBJECTIVES:

#### The students will try to learn:

- The specific roles within a software organization as related to project and process management
- The basic infrastructure competences (e.g., process modeling and measurement).
- The basic steps of project planning, project management. Quality assurance, and process management and their relationships.

### III. COURSE OUTCOMES;

- Outline process models, approaches and techniques of software economics.
- Evaluate professional ethics in successful project development.
- Elaborate the life cycle of project management
- Analyze evaluation of organization and core metrics for project organization
- Apply model based architectural concepts for building software.
- Determine case study on future software project management practices in business context and scope of the project.

#### **IV. COURSE SYLLABUS:**

##### **MODULE–I: CONVENTIONAL SOFTWARE MANAGEMENT (9)**

The waterfall model, conventional software Management performance. Evolution of Software Economics: Software Economics. Pragmatic software cost estimation.

##### **MODULE–II: IMPROVING SOFTWARE ECONOMICS (9)**

Reducing Software product size, improving software processes, improving team effectiveness. Improving automation, Achieving required quality, peer inspections. The old way and the new- The principles of conventional software engineering. Principles of modern software management, transitioning to an iterative process.

##### **MODULE– III: LIFE CYCLE PHASES (9)**

Engineering and production stages, inception. Elaboration, construction, transition phases. Artifacts of the process: The artifact sets. Management artifacts, Engineering artifacts, programmatic artifacts.

Model based software architectures: A Management perspective and technical perspective.

##### **MODULE– IV: PROJECT ORGANIZATIONS (9)**

Project Organizations Line-of- business organizations, project organizations, evolution of organizations, process automation. Project Control and process instrumentation the seven-core metrics, management indicators, quality indicators, life-cycle expectations, Pragmatic software metrics, metrics automation.

##### **MODULE– V: CASE STUDIES (9)**

CCPDS-R Case Study and Future Software Project Management Practices Modern Project Profiles, Next-Generation software Economics, Modern Process Transitions

#### **V. TEXT BOOKS:**

1. Walker Royce, “Software Project Management”, Pearson Education, 6<sup>th</sup> Edition, 2000.
2. Bob Hughes & Mike Cotterell, “Software Project Management”, Tate McGraw H, 4<sup>th</sup> Edition, 2000.

#### **VI. REFERENCE BOOKS:**

1. Andrew Steilbian & Jennifer Greene, “Applied Software Project Management”, O’Reilly. 2006.
2. Jennifer Greene & Andrew Stelman, “Head First PMP”, O ReiHy, 2007.
3. Richard H. Thayer & Edward Yourdon, “Software Engineering Project Management”, Wiley India, 2<sup>nd</sup> Edition, 2004.
4. Jim Highsniith, “Ale Project Management”, Pearson Education, 2004.

#### **VII. MATERIALS ONLINE:**

1. Course Outline Description
2. Tutorial question bank
3. Tech talk 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. PowerPoint presentation
11. E-Learning Readiness Videos (ELRV)