# PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

(Autonomous) Kanuru, Vijayawada-520007

# **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (Data Science)**

IV B Tech – I Semester (Data Science)

# SOFTWARE PROJECT MANAGEMENT

| <b>Course Code</b>                   | 20DS4701C | Year                           | IV                 | Semester      | I                       |
|--------------------------------------|-----------|--------------------------------|--------------------|---------------|-------------------------|
| Course<br>Category                   | PE        | Branch                         | CSE (Data Science) | Course Type   | Theory                  |
| Credits                              | 03        | L-T-P                          | 3-0-0              | Prerequisites | Software<br>Engineering |
| Continuous<br>Internal<br>Evaluation | 30        | Semester<br>End<br>Examination | 70                 | Total Marks   | 100                     |

| Course Outcomes   |   |    |  |  |  |  |
|---|---|----|--|--|--|--|
| Upon successful completion of the course, the student will be able to |   |    |  |  |  |  |
|   | Describe software management practices and life cycle models to understand their application in development.                                      | LL |  |  |  |  |
| CO2   | Apply principles of software economics and estimation techniques to improve project planning, cost control, and team productivity.                | L3 |  |  |  |  |
|   | Apply software process components like workflows, artifacts, checkpoints, and   |    |  |  |  |  |
|   | Analyze project management techniques to effectively plan, organize, and control software projects using suitable structures, metrics, and tools. |    |  |  |  |  |

|     | Contribution of course outcomes towards achievement of program outcomes & Strength of correlations (3: Substantial,2: Moderate,1: Slight) |     |     |     |     |     |     |     |     |      | (3:  |      |      |
|-----|---|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|
|     | PO1   | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | P010 | PO11 | PSO1 | PSO2 |
| CO1 | 2   |     |     |     |     |     |     |     |     |      |      |      |      |
| CO2 | 3   |     |     |     |     |     |     |     |     |      |      |      |      |
| CO3 | 3   |     |     |     |     |     |     |     |     |      |      |      |      |
| CO4 |   | 3   |     |     |     |     |     |     |     |      | 2    |      |      |

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| Syllabus    |  |              |  |  |  |  |
|-------------|--|--------------|--|--|--|--|
| Unit<br>No. | Contents   | Mapped<br>CO |  |  |  |  |
| I           | Conventional Software Management: The waterfall model, conventional software Management performance.  Evolution of Software Economics: Software Economics, pragmatic software  | CO1,         |  |  |  |  |
|             | cost estimation.  Improving Software Economics: Reducing Software product size, improving software processes, improving team effectiveness, improving automation, Achieving required quality, peer inspections.  |              |  |  |  |  |
| П           | Conventional and Modern Software Management: The principles of conventional software Engineering, principles of modern software management, transitioning to ar iterative process.  Life cycle phases: Engineering and production stages, inception, Elaboration construction, transition phases.                        |              |  |  |  |  |
| Ш           | Artifacts of the process: The artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts.  Model based software Architectures: A Management perspective and technical perspective.  Work Flows of the process: Software process workflows, Iteration workflows.                                  |              |  |  |  |  |
|             | Checkpoints of the process: Major mile stones, Minor Milestones, Periodic status assessments.  | CO2,         |  |  |  |  |
| IV          | <b>Iterative Process Planning</b> : Work breakdown structures, planning guidelines, cost and schedule estimating, Iteration planning process, Pragmatic planning.  | CO3          |  |  |  |  |
| V           | Project Organizations and Responsibilities: Line-of-Business Organizations, Project Organizations, evolution of Organizations.  Project Control and Process Instrumentation: The seven core Metrics, Management indicators, quality indicators, life cycle expectations, pragmatic Software Metrics, Metrics automation. | CO4          |  |  |  |  |

# Learning Resources Text Books 1. Software Project Management, Walker Rayce, first edition, 1998, Addison-Wesley Professional. Reference Books 1. Software Engineering Project Management, Richard H. Thayer, Second Edition, 1997, IEEE Computer Society Press. 2. Software Engineering and Management, K.D. Shere, First Edition, 1998, Prentice-Hall of India (PHI). 3. Software Project Management: A Concise Study, S.A. Kelkar, Third Edition, 2012, PHI Learning Pvt. Ltd. 4. Software Project Management: From Concept to Deployment, Kieron Conway, First Edition, 2001, Coriolis Group Books. e-Resources &other digital material 1. Software Project Management: https://nptel.ac.in/courses/106105218