NIRMA UNIVERSITY

Institute:	Institute of Technology
Name of Programme:	BTech All (Other than CSE)
Course Code:	Software Project Management
Course Title:	4CS504ME25
Course Type:	Interdisciplinary Minor- Elective
Year of Introduction:	2025-26

L	T	Practical Component				C
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Course Learning Outcomes (CLO):

At the end of the course, the students will be able to –

1. explain basic project management concepts, framework, and process models (BL2)
2. experiment with various software process models and software effort estimation techniques (BL3)
3. evaluate the checkpoints, project reporting structure, project progress, and tracking mechanisms using project management principles (BL5)
4. develop skills in the use of modern software project management and development tools. (BL6)

Unit	Contents	Teaching Hours (Total 45)
Unit-I	**Software Projects:** Understanding Software Projects, Software Project management, Software Development Life cycle, Typical Software roles and responsibilities, Components, Review of Models for Software Development, roles and responsibilities of project manager	05
Unit-II	**Project Scheduling**: Management Activities, Project Planning, Project Scheduling, The Relationship Between People and Effort, defining a Task Set for the Software Project, Activity Network, Time-Line Chart	08
Unit-III	**Process and Project Metrics**: Metrics in Process and Project Domains, Software Measurement, Size-Oriented Metrics, Function-Oriented Metrics, Use Case-Oriented Metrics, Metrics in Software Quality, Defect Removal Efficiency, Integrating Metrics within the Software Process. **Estimation for Software Projects:** LOC-based Estimation, FP-based Estimation, Use Case-based Estimation, COCOMO I and II Model, Estimation of Object-Oriented Projects, The Make/Buy Decision	10
Unit-IV	**Risk Management**: Reactive versus Proactive Risk Strategies, Software Risks, Risk Identification, Risk Projection, Risk Refinement, Risk Mitigation, Monitoring, and Management, The RMMM Plan Project Execution and Closure: Reviews, Project Monitoring and Control, Project Tracking, Milestone Analysis, Defect Analysis and Prevention, Project Closure	08
Unit-V	**Software Project Audit**: Introduction, Quality, Quality Principles, Quality Attributes IT, Quality Assurance, Process Definition Life Cycle, Quality Audits, Quality Assurance vs Quality Control	06

Unit-VI	**Project Management in Maintenance Projects:** Introduction, Software Project Maintenance Life Cycle, Process, estimation, Configuration management, Metrics, Defect prevention, Issues	04
Unit-VII	**Software Configuration Management:** SCM Activities, Baselines, Software Repository and Its Branches, Configuration Control, Software Configuration Audit	04

Self-Study:
The self-study contents will be declared at the commencement of the semester. Around 10% of the questions will be asked from self-study contents.

Suggested Readings/ References:

1. Bob Hughes, Mike Cotterell and Rajib Mall: Software Project Management – Fifth Edition, McGraw Hill
2. Software Project Management, Sanjay Mohapatra, Cengage Learning Roger Pressman, Software Engineering A Practitioner's Approach, McGraw Hill
3. Claude Y. Laporte, Alain April, Software Quality Assurance, Wiley
4. Pankaj Jalote, Software Project Management in Practice, Addison Wesley
5. Daniel Galin, Software Quality Assurance: From Theory to Implementation, Pearson Education
6. Ian Sommerville, Software Engineering, Addison Wesley

Suggested List of Experiments: -NA-