

<p>Course Title: Software Project Management</p> <p>Course Code (Credit): CS30012 (L-T-P-Cr: 3-0-0-3)</p> <p>Prerequisites: CS31001</p>
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Course Faculty: Dr. Saurabh Bilgaiyan

Course Objectives:

1. Recognize basic concepts and issues of software project management
2. Emphasize successful software projects that support organization's strategic goals
3. Comprehend software quality issues
4. Comprehend software risk issues
5. Analyse SPM tools

Course Contents:

UNIT I : SPM Concepts:

Definition, Components of SPM, Challenges and opportunities, Tools and techniques, Managing human resource and technical resource, Costing and pricing of projects, Training and development, Project management techniques.*

UNIT II : Software Measurements:

Monitoring & measurement of SW development, Cost, Size and time metrics, Methods and tools for metrics, Issues of metrics in multiple projects.*

UNIT III : Software Quality:

Quality in SW development, Quality assurance, Quality standards and certifications, The process and issues in obtaining certifications, The benefits and implications for the organization and its customers, Change management.*

UNIT IV :Risk Issues:

The risk issues in SW development and implementation, Identification of risks, Resolving and avoiding risks, Tools and methods for identifying risk management.*

UNIT V : SPM Tools:

Software project management using Primavera & Redmine, Case study on SPM tools.* *Programming assignments are mandatory.

Course Outcomes:

Upon completion of this course, the students will be able to:

CO1: Identify the job roles of an IT project manager to conduct project planning activities

CO2: Plan to maintain and monitor software projects and processes

CO3: Design and develop project modules and assign resources

CO4: Comprehend, assess, and estimate the cost of risk involved in a project management

CO5: Analyze the tools for risk management

CO6: Design a Case study using SPM tools

Day-wise Plan

Lecture:	3 Hrs/Week	Internal Assessment Marks:	50
Tutorial:	0 Hrs/Week	End Term Marks:	50
Practical:	0	Credits:	3

<u>Topics / Coverage</u>	<u>Unit-wise CO mapping</u>	<u>Lecture No</u>
Why is software project management important?, What is a project?, Software projects versus other types of project, Definition of SPM	UNIT I : SPM Concepts CO: 1 CO: 2 CO: 3	1
Components of SPM: Activities covered by software project management Plans, Tools and techniques: methods and methodologies		2
Categorization of software projects, Challenges and opportunities: Project success and failure, What is management? Management control.		3
Managing human resource and technical resource:Project Portfolio Management, Costing and pricing of projects: Cost-benefit Evaluation, Risk evaluation		4
Managing Allocation of Resources, Benefits Management, Training and development		5
An Overview of Project Planning/Project management techniques: Introduction to Step Wise project Planning: Step 0: Select project, Step 1: Identify project scope and objectives, Step 2: Identify project infrastructure Step-3: Analysis of project Characteristics,		6,7,8
Step 4: Identify project products and activities Step 5: Estimate effort for each activity, Step 6: Identify activity risks,		9,10,11
Step 7: Allocate resources Step 8: Review/publicize plan, Steps 9 and 10: Execute plan/lower levels of planning		12,13, 14
Monitoring & measurement of SW development: Software Effort Estimation:Introduction, Where are estimates done?, Problems with over- and underestimates, The basis for software estimating	UNIT II : Software Measurements	15
Methods and tools for Cost, Size and time metrics: Software effort estimation techniques, Bottom-up estimating, The top-down approach and parametric models		16
Expert judgment, Estimating by analogy, Albrecht function point Analysis, Function points Mark II, COSMIC full function points		17, 18
COCOMO, Issues of metrics in multiple projects		19, 20
Pre-Mid semester Session (04/12/2024–15/02/2025) Mid Semester Examination (17/02/2025 – 22/02/2025) Mid Sem Syllabus (Unit 1 and Unit 2)		
Post-Mid semester Session (23/02/2025 – 11/04/2025)		

Quality in SW development, The place of software quality in project planning, Quality assurance, Quality standards and certifications, The process and issues in obtaining certifications	UNIT III : Software Quality	21
The importance of software quality: The benefits and implications for the organization and its customers, Defining software quality, ISO 9126, Product versus process quality.		22, 23
Process capability models, SEI-CMM, Techniques to enhance software quality, TestingQuality plans, Change management		24,25
Risk, Categories of risk, A framework for dealing with risk, Steps in risk management	UNIT IV :Risk Issues CO: 4 CO: 5	26
Risk identification, Risk assessment, Risk planning, Risk management		27
Evaluating risks to the schedule, Applying the PERT technique, Monte Carlo simulation, Critical chain concepts		28,29
Software project management using Primavera & Redmine	UNIT V : SPM Tools CO: 6	30,32
Case study on SPM tools		33-36
End Semester Examination (12/04/2025 – 22/04/2025)		

Textbooks:

1. Sanjay Mohapatra, “Software Project Management”

2. Richard H. Thayer, “Software Engineering Project Management”, Second Edition, John Wiley & Sons, 2001.

3. Royce, Walker, “Software Project Management”, First Edition, Pearson Education, 1998.

Reference Books:

1. Kelker S. A., “Software Project Management”, Third Edition, PHI, 2003

2. Kan, Stephen H., “Metrics and Models in Software Quality Engineering”, Addison-Wesley Longman Publishing Co. Inc., 2002.

3. Galin, Daniel, “Software Quality Assurance: From Theory to Implementation”, Addison-Wesley, 2004.

Internal Assessment : Activity Based Continuous Evaluation (30 Marks) + Mid Semester (20 Marks)

Activity 1	Pre-Midsem (15 Marks)	15 Marks should be communicated to the students before Mid Semester Starts.	All Activities should be some kind of analytical exercise/test. The minimum number of activities should be 4, However, Faculty members can conduct more than 4 Activities.
Activity 2			
Activity 3	Post-Midsem (15 Marks)	30 Marks should be communicated to the students before Mid Semester Starts.	
Activity 4			

