INSTITUTE	**FACULTY OF TECHNOLOGY**
PROGRAM	**BACHELOR OF TECHNOLOGY (COMPUTER ENGINEERING)**
SEMESTER	**7**
COURSE TITLE	**SOFTWARE PROJECT MANAGEMENT**
COURSE CODE	**01CE0725**
COURSE CREDITS	**4**

Objective:

1 The objective of this syllabus is to understand and apply software project management principles, tools, and techniques for planning, executing, and controlling software projects effectively in real-world environments.

Course Outcomes: After completion of this course, student will be able to:

1 Analyze software project management concepts, lifecycle models, and organizational structures for effective project execution.

2 Apply project planning, estimation, scheduling, and risk management techniques in software projects.

3 Analyze and implement resource management, team coordination, and communication strategies in software development environments.

4 Evaluate project monitoring, control mechanisms, and quality assurance practices to ensure successful project delivery.

5 Apply software testing strategies, test planning, and quality validation techniques in software project lifecycle.

Pre-requisite of course: Software Engineering Concepts

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
3	0	2	50	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	**Introduction to Software Project Management** Introduction to Software Project Management,, Need and Importance of Project Management, Project Lifecycle Models, Software Development Lifecycle (SDLC) vs Project Lifecycle,, Project Organization Structures (Functional, Matrix, Projectized), Role of Project Manager, Project Stakeholders and Responsibilities, Project Constraints (Scope, Time, Cost, Quality)	7

DR. KRUNAL NARUMAL VAGHELA
Digitally signed by (Name of HOD)

DR. RAJENDRASINH BAHADURSINH JADEJA
Digitally signed by (Name of Dean/ Principal)

Contents : Unit	Topics	Contact Hours
2	**Project Planning and Estimation** Project Planning Process, Scope Management, Work Breakdown Structure (WBS),, Effort Estimation Techniques (COCOMO, Function Point Analysis),, Cost Estimation and Budgeting, Project Scheduling (Gantt Chart, PERT, CPM), Resource Allocation, Risk Management Process, Risk Identification, Risk Analysis, Risk Mitigation Strategies	10
3	**Resource Management and Team Coordination** Human Resource Management in Software Projects, Team Formation and Development, Leadership Styles, Motivation Techniques, Communication Management, Conflict Resolution Strategies, Agile Project Management (Scrum, Kanban), Distributed Team Management	10
4	**Project Monitoring, Control and Quality Management** Project Monitoring and Control Techniques, Earned Value Management (EVM), Performance Metrics and KPIs, Change Management, Configuration Management, Software Quality Assurance (SQA), Quality Standards (ISO, CMMI), Project Closure, Post-Project Evaluation.	7
5	**Software Testing and Quality Validation** Fundamentals of Software Testing,, Testing, Test Planning, Test Case Design, Testing Levels (Unit, Integration, System, Acceptance), Testing Techniques (Black Box, White Box), Automation Testing Tools, Defect Tracking, Bug Lifecycle, Test Metrics, Reporting, Continuous Testing in DevOps	8
Total Hours		**42**

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**Practical 1** Problem Definition and Scope Identification	2
2	**Practical 2** Stakeholder Identification and Analysis	2
3	**Practical 3** Work Breakdown Structure (WBS) Preparation	2
4	**Practical 4** Effort Estimation using COCOMO / Function Point	2
5	**Practical 5** Project Scheduling using Gantt Chart / PERT-CPM	2
6	**Practical 6** Risk Identification and Risk Management Plan	2
7	**Practical 7** Agile Planning (Product Backlog & Sprint Backlog)	2

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Digitally signed by (Name of HOD)

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Digitally signed by (Name of Dean/ Principal)

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
8	**Practical 8** Resource Allocation and Team Structure Design	2
9	**Practical 9** Earned Value Management (EVM) Analysis	2
10	**Practical 10** Quality Assurance Plan Preparation	2
11	**Practical 11** Test Plan and Test Case Design (Black-box / White-box)	2
12	**Practical 12** Defect Tracking and Bug Reporting	2
Total Hours		**24**

Textbook :

1 Software Project Management, Bob Hughes, Mike Cotterell, Rajib Mall, McGraw-Hill., Ingram short title , 2009

2 Software Engineering: A Practitioner's Approach, Roger S. Pressman, McGraw-Hill., 0, 2023

References:

1 Project Management for Engineering, Business and Technology, Project Management for Engineering, Business and Technology, John M. Nicholas, Taylor & Francis., 0, 2004

2 Agile Project Management with Scrum, Agile Project Management with Scrum, Microsoft Press, -, 2004

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking / Creative**
0.00	0.00	25.00	50.00	25.00	0.00

Instructional Method:

1 The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use multimedia presentations, animations, and real-world examples.

2 The internal evaluation will be done on the basis of continuous evaluation of students in the class-room.

3 Students will use supplementary resources such as Coursera, NPTEL videos,e-courses, etc..

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Digitally signed by (Name of HOD)

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Supplementary Resources:

1. https://www.pmi.org/learning/library
2. https://www.scrumguides.org/
3. https://www.atlassian.com/agile
4. https://www.iso.org/iso-9001-quality-management.html
5. https://cmmiinstitute.com/learning/appraisals
6. https://www.tutorialspoint.com/software_testing/index.htm
7. https://www.javatpoint.com/software-project-management