	Software Engineering and Agile Practices	L	T	P	C
Version 1.0		3	0	0	3
Pre-requisites/Exposure	Basic knowledge of software development				
Co-requisites	--				

Course Objectives

1. To introduce the fundamental concepts of software engineering.
2. To build an understanding on various phases of software development.
3. To introduce various software process models.
4. To introduce various Agile based practices in software development

Course Outcomes

On completion of this course, the students will be able to

CO1. Use knowledge of Software Life Cycle to successfully implement the projects in the corporate world.

CO2. Identify the Inputs, Tools and techniques to get the required Project deliverable and Product deliverable

CO3. Implement Project Management Processes to successfully complete project in IT industry

CO4. Discuss Project management activities and Agile Practices

Catalog Description

Software engineering Agile Practices focuses on techniques for managing software engineering projects and builds on core software engineering and Agile Practices concepts. This course provides an understanding of both theoretical and methodological issues involved in modern software engineering project management and focuses strongly on associated Agile Practices techniques.

Course Content

Module I: Introduction to Software Engineering and Project Management

Introduction to Software Engineering: Software, evolving role of software, three "R"-Reuse, Reengineering and Retooling, An Overview of IT Project Management: Define project, project management framework, the role of project Manager, Systems View of Project Management, Stakeholder Management, Project phases and the project life cycle.

Module II: Software Development Life Cycle Models.

Overview of Software Development Life Cycle, Process Models: Waterfall Model, Evolutionary Process Model: Prototype and Spiral Model, Incremental Process model: Iterative approach, RAD, JAD model, Concurrent Development Model.

Module III: Software Requirement Analysis and Specification

Types of Requirements, Feasibility Study, Requirement Analysis and Design: DFD, Data Dictionary, Requirement Elicitation: Interviews, Questionnaire, Brainstorming, Facilitated Application Specification Technique (FAST), Use Case Approach. SRS Case study, Software Estimation: Size Estimation: Function Point (Numerical). Cost Estimation: COCOMO (Numerical), COCOMO-II (Numerical), Earned Value Management.

Module IV: Software Project Planning

Business Case, Project selection and Approval, Project charter, Project Scope management: Scope definition and Project Scope management, Creating the Work Breakdown Structures, Scope Verification, Scope Control.

Module V: Software Project Management
Relationship between people and Effort: Staffing Level Estimation, Effect of schedule Change on Cost, Degree of Rigor & Task set selector, CPM (Numerical), Human Resource Planning, Acquiring, Resource Assignment, Loading, Leveling, Software quality, software reliability models, Overview of ISO 9001, SEI Capability Maturity Model, McCalls Quality Model, Risk Management, Risk monitoring, Control and Evaluation, Maintenance Model, Regression Testing, Reverse Engineering.

Module VI : Agile Practices
Understanding Common Agile Practices, Automated Testing, Integrated Configuration Management, Continuous Integration, Integrated Deployment Planning, Scrum, Kanban, Extreme Programming, Pair Programming, Test Driven Development.

Text Books

1. Software Engineering, 5th and 7th edition, by Roger S Pressman, McGraw Hill publication.

2. Software Engineering Project Management by Richard H. Thayer Wiley India Publication.

3. Art of Agile Development, by James Shore and Shane Warden, O'Reilly Publication.

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination
Examination Scheme:

Relationship between the Course Outcomes (COs), Program Outcomes (POs) and Program Specific Objectives (PSOs)

Course Outcomes	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	2		1		1			1	1						2
CO2	2	2	2		3	2		3	3	2		2	2		3
CO3	2	1	3		3	2		3	3	2		2	2		3
CO4	2	1			2			1	2				1		2
Average	2	1.33	2		2.25	2		2	2.25	2		2	1.66		2.5

1=weak 2= moderate 3=strong