SOFTWARE PROCESS AND PROJECT MANAGEMENT

VI Semester: IT

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
AIT512	Elective	3	-	-	3	30	70	100
Contact Classes: 45	Tutorial Classes: Nil	Practical Classes: Nil				Total Classes: 45		

COURSE OBJECTIVES:

The course should enable the students to:

I. Understand overall software development life cycle and adopt suitable processes.
II. Analyze, prioritize, and manage both functional and quality requirements.
III. Estimate efforts required, plan, and track the plans.
IV. Understand and apply configuration and quality management techniques.

COURSE OUTCOMES (COs):

CO 1: Describe the concept of Software Development Life Cycle and analyze the concepts of processes, TSP, PSP
CO 2: Determine the functional requirements, elicitation techniques and Quality Attribute workshop, ACDM, documentation, and specification, change management and traceability of requirements.
CO 3: Understand Estimation, Planning, And Tracking.
CO 4: Explore the concept of Configuration And Quality Management.
CO 5: Use of Software Process Definition And Management.

COURSE LEARNING OUTCOMES (CLOs):

1. Describe the basic concepts of Software Development Life Cycle.
2. Summarize the concept of processes.
3. Analyze the concepts of Personal Software Process (PSP), Team Software Process (TSP).
4. Use the concept of agile processes in real-world problems.
5. Determine the Functional requirements and quality attributes.
6. Understand elicitation techniques, Quality Attribute Workshop (QAW).
7. Determine the analysis, prioritization, and trade off.
8. Use Architecture Centric Development Method (ACDM).
9. Illustrate the documentation, and specification.
10. Describe the change management and traceability of requirements.
11. Understand software risks.
12. Understand the concept of function points, COCOMO II, estimations.
13. Understand the Work break down structure, macro and micro plans.
14. Understand the planning poker, wideband Delphi.
15. Summarize the tracking the plan, Earned Value Method (EVM).
16. Identifying articrafts to be configured, naming conventions.
17. Understand the version control, configuration control, quality assurance techniques.
18. Summarize the concept of peer reviews, Fagan inspection.
19. Apply testing of unit, registration, system, and acceptance, test data and test cases.
20. Understand the bug tracking, casual analysis.
21. Use Process elements, process architecture.
22. Usage of Process relationship between elements, process modeling.
23. Use of the process definition techniques ETVX, CMMI, six sigma.

UNIT -I	**DEVELOPMENT LIFE CYCLE PROCESSES:**	**Classes: 10**
Overview of Software Development Life Cycle, introduction to processes, Personal Software Process (PSP), Team Software Process (TSP), unified processes, agile processes, choosing the right process.		
UNIT -II	**REQUIREMENTS MANAGEMENT:**	**Classes: 10**
Functional requirements and quality attributes, elicitation techniques, Quality Attribute Workshop (QAW), analysis, prioritization, and trade off, Architecture Centric Development Method (ACDM), requirements, documentation, and specification, change management, traceability of requirements.		
UNIT -III	**ESTIMATION, PLANNING, AND TRACKING:**	**Classes: 09**
Identifying and prioritizing risks, risk mitigation plans, estimation techniques, use case points, function points, COCOMO II, top down estimation, bottom up estimation. Work break down structure, macro and micro plans, planning poker, wideband Delphi, documenting the plan, tracking the plan, Earned Value Method (EVM).		
UNIT -IV	**CONFIGURATION AND QUALITY MANAGEMENT:**	**Classes: 08**
Identifying articrafts to be configured, naming conventions and version control, configuration control, quality assurance techniques, peer reviews, Fagan inspection, unit, registration, system, and acceptance testing, test data and test cases, bug tracking, casual analysis		
UNIT -V	**SOFTWARE PROCESS DEFINITION AND MANAGEMENT:**	**Classes: 08**
Process elements, process architecture, relationship between elements, process modeling, process definition techniques, ETVX (Entry-Task-Validation-exit), process base lining, process assessment and improvement, CMMI, six sigma.		

Text Books:

1. Pankaj Jalote, "Software Process Management in Practice"‖, Pearson, Illustrated, 2002.
2. Walker Royce, "Software Project Management – A Unified Framework",Pearson Education, 1st Edition, 2002

Reference Books:

1. Watts S.Humphrey, "PSP: A Self Improvement Process for Software Engineers", Addison Wesley, 1st Edition, 2005.
2. Chris F. Kemerer, "Software Project Management- Readings and Cases", McGraw-Hill, Illustrated, 2nd Edition, 1997.
3. Watts S. Humphrey, "Introduction to the Team Software Process", Addison-Wesley, Illustrated Reprint, 2000.