INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)
Dundigal, Hyderabad-500043

INFORMATION TECHNOLOGY

TUTORIAL QUESTION BANK

Course Title	**SOFTWARE PROCESS AND PROJECT MANAGEMENT**
Course Code	AIT512
Programme	B.Tech
Semester	VI IT
Course Type	Elective
Regulation	**IARE - R16**

	Theory			Practical	
Course Structure	**Lectures**	**Tutorials**	**Credits**	**Laboratory**	**Credits**
	3	-	3	-	-
Chief Coordinator	Mr. E. Sunil Reddy, Assistant Professor				
Course Faculty	Mr. E. Sunil Reddy, Assistant Professor				

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):

AIT512.01	Describe the basic concepts of Software Development Life Cycle.
AIT512.02	Summarize the concept of processes.
AIT512.03	Analyze the concepts of Personal Software Process (PSP), Team Software Process (TSP).
AIT512.04	Use the concept of unified, agile processes in real-world problems.
AIT512.05	Determine the Functional requirements and quality attributes.
AIT512.06	Understand elicitation techniques, Quality Attribute Workshop (QAW).
AIT512.07	Determine the analysis, prioritization, and trade off.
AIT512.08	Use Architecture Centric Development Method (ACDM).
AIT512.09	Illustrate the documentation, and specification.
AIT512.10	Describe the change management and traceability of requirements.
AIT512.11	Understand the risk prioritization, risk mitigation.
AIT512.12	Understand the concept of function points, COCOMO II, estimation techniques.
AIT512.13	Understand the Work break down structure, macro and micro plans.
AIT512.14	Understand the planning poker ,wideband Delphi.
AIT512.15	Summarize the tracking the plan ,Earned Value Method (EVM).
AIT512.16	Identifying articrafts to be configured, naming conventions.
AIT512.17	Understand the version control, configuration control, quality assurance techniques.
AIT512.18	Summarize the concept of peer reviews, Fegan inspection.
AIT512.19	Apply testing of unit, registration, system, and acceptance, test data and test cases.
AIT512.20	Understand the bug tracking, casual analysis.
AIT512.21	Use Process elements, architecture, definition, assessment and improvement.
AIT512.22	Usage of relationship between Process elements, process modeling.
AIT512.23	Use of the process base lining ETVX, CMMI, six sigma.

	UNIT- I			
	DEVELOPMENT LIFE CYCLE PROCESSES			
	Part - A (Short Answer Questions)			
S No	**QUESTIONS**	**Blooms Taxonomy Level**	**Course Outcomes**	**Course Learning Outcomes (CLOs)**
1	Define Software Development Life Cycle.	Remember	CO 1	AIT512.01
2	What is meant by software process.	Understand	CO 1	AIT512.02
3	Define Personal Software Process.	Remember	CO 1	AIT512.03
4	What is meant by Team Software Process.	Remember	CO 1	AIT512.03
5	Define Unified Process.	Remember	CO 1	AIT512.04
6	Define inception phase.	Remember	CO 1	AIT512.04
7	Write the steps for choosing the right process.	Remember	CO 1	AIT512.04
8	Define elaboration phase.	Remember	CO 1	AIT512.04
9	Define Team Software Process principles.	Remember	CO 1	AIT512.03
10	What are the activities of a software process.	Remember	CO 1	AIT512.03
11	What is the purpose of Personal Software Process.	Remember	CO 1	AIT512.03
12	Write the stages in Software Development Life Cycle.	Remember	CO 1	AIT512.01
13	Define construction phase.	Understand	CO 1	AIT512.04
14	What is the purpose of Team Software Process.	Understand	CO 1	AIT512.03
15	What are the phases in unified process.	Remember	CO 1	AIT512.04
16	Name the levels in levels in Personal Software Process structure.	Understand	CO 1	AIT512.03
17	What are the principles of agile process.	Understand	CO 1	AIT512.04
18	Define transition phase.	Remember	CO 1	AIT512.04
19	Define agile Process.	Understand	CO 1	AIT512.04
20	What are the characteristics of agile projects.	Remember	CO 1	AIT512.04
	Part - B (Long Answer Questions)			
1	Briefly explain about the frame work activities of PersonalSoftware Process.	Understand	CO 1	AIT512.03
2	Discuss the phases of software development life cycle in ascending order.	Understand	CO 1	AIT512.01
3	With neat diagram explain briefly about Unified Process Model with examples.	Understand	CO 1	AIT512.04
4	Compare and contrast the differences between Team Software Process and Personal Software Process.	Understand	CO 1	AIT512.03
5	What is Agile development? Discuss in detail about Agile development process.	Remember	CO 1	AIT512.04
6	Justify your answer „Which software development life cycle model is the best".	Understand	CO 1	AIT512.01
7	Explain briefly different types of software development models with examples .	Remember	CO 1	AIT512.01
8	Describe with the help of the diagram discuss in detail waterfall model. Give certain reasons for its failure.	Understand	CO 1	AIT512.01
9	Explain the different uses of agile development process in real world applications.	Understand	CO 1	AIT512.04
10	Explain in detail about analysis and design phase with examples.	Understand	CO 1	AIT512.01
11	Differentiate and describe the merits for unified vs agile process.	Understand	CO 1	AIT512.04
	Part - C (Problem Solving and Critical Thinking Questions)			
1	Suggest how an engineer responsible for drawing up a system Knowledge 4 requirements specification might keep track of the relationship between functional and non- functional requirements?	Understand	CO 1	AIT512.01

2	Why it is almost inevitable that the requirements of different stakeholderswill conflict in some way?	Understand	CO 1	AIT512.01
3	What are your experiences with the Team Software Process and PersonalSoftware Process?	Remember	CO 1	AIT512.03
4	What process adaptations are required if the prototype will evolve into a deliverable system or product?	Understand	CO 1	AIT512.04
5	Write a one page paper that distinguishes among the fundamental purposes of the analysis phase, the design phase and the implementation phase.	Understand	CO 1	AIT512.01
6	Provide three examples of software projects that would be amenable to the waterfall model. Be specific.	Understand	CO 1	AIT512.01

UNIT-II				
REQUIREMENTS MANAGEMENT				
Part – A (Short Answer Questions)				
1	What are functional requirements	Understand	CO 2	AIT512.05
2	Give the advantages of elicitation techniques.	Understand	CO 2	AIT512.06
3	Define quality attributes.	Understand	CO 2	AIT512.06
4	Give the disadvantages of elicitation techniques.	Understand	CO 2	AIT512.06
5	Define Quality Attribute Workshop (QAW).	Remember	CO 2	AIT512.06
6	What is meant by trade-off.	Understand	CO 2	AIT512.07
7	What are the pre and post conditions to be met for analysis.	Remember	CO 2	AIT512.05
8	Steps involved in change management.	Understand	CO 2	AIT512.10
9	What is prioritization.	Understand	CO 2	AIT512.10
10	What methods used to specify functional requirements.	Understand	CO 2	AIT512.05
11	What are the different elicitation techniques.	Remember	CO 2	AIT512.06
12	Define requirements document.	Remember	CO 2	AIT512.09
13	Explain change management procedures.	Understand	CO 2	AIT512.10
14	What diagrams used to specify functional requirements.	Understand	CO 2	AIT512.05
15	How to measure the quality attributes?	Understand	CO 2	AIT512.06
16	What are the Identifications of quality attributes.	Remember	CO 2	AIT512.09
17	What are goals of requirement analysis phase.	Remember	CO 2	AIT512.05
18	Define traceability of requirements.	Remember	CO 2	AIT512.10
19	State Steps to involve Quality Attribute Workshop (QAW).	Remember	CO 2	AIT512.06
20	What is meant by Prioritizing requirements.	Remember	CO 2	AIT512.07
Part - B (Long Answer Questions)				
1	With an example explain Functional Requirements and also sketch the functional requirements template.	Remember	CO 2	AIT512.05
2	Describe the activities involved in Functional Requirements that a system must be able to perform.	Understand	CO 2	AIT512.05
3	Discuss in detail about different elicitation techniques with examples.	Understand	CO 2	AIT512.06
4	Explain in detail the steps involved in Quality Attribute Workshop (QAW).	Remember	CO 2	AIT512.06
5	What is Requirements Prioritization? Discuss briefly about the different Aspects of Prioritization?	Understand	CO 2	AIT512.07
6	Describe the procedure for Involved Stakeholders in the Prioritization Process.	Understand	CO 2	AIT512.07
7	Discuss with an Example of a Requirements Prioritization in detail.	Understand	CO 2	AIT512.07
8	Describe the terms analysis, prioritization and trade off with respect to requirements.	Understand	CO 2	AIT512.07
9	Explain various steps that are executed in Architecture Centric Development Method.	Remember	CO 2	AIT512.08
10	Discuss about Software Requirements Specification document with example.	Understand	CO 2	AIT512.05

11	Explain the procedure for improving the software process change management.	Understand	CO 2	AIT512.10
12	Which parameters are to be include in Requirement Traceability.	Understand	CO 2	AIT512.10
13	Explain with Benefits of Requirements Traceability in Application Development.	Understand	CO 2	AIT512.10
14	How do businesses benefit fromimplementing a Requirements traceability solution.	Understand	CO 2	AIT512.10
	Part - C (Problem Solving and Critical Thinking Questions)			
1	You have been given the responsibility to elicit requirements from a customer who tells you he is too busy to meet with you. What should you do?	Understand	CO 2	AIT512.06
2	Discuss some of the problems that occur when requirementsmust be elicited from three or four different customers.	Remember	CO 2	AIT512.06
3	Select the three that you believe are most important, and make an argument that explains why each should be emphasized in Web Application design work.	Understand	CO 2	AIT512.05
4	Illustrate how stakeholders provide business goals which are distilled and refined by the architectural drivers that drive the structure of the system.	Understand	CO 2	AIT512.05
5	To what extent can Requirement Traceability reduce requirements tracing efforts applicable in the case study project "public transport on demand" ?	Understand	CO 2	AIT512.06
	UNIT-III			
	ESTIMATION, PLANNING, AND TRACKING			
	Part - A (Short Answer Questions)			
1	What is meant by Identifying risks.	Remember	CO 3	AIT512.11
2	State the prioritizing risks.	Remember	CO 3	AIT512.11
3	Define function point.	Understand	CO 3	AIT512.11
4	What is Estimation.	Remember	CO 3	AIT512.12
5	Define COCOMO II.	Remember	CO 3	AIT512.12
6	Define a work breakdown structure.	Understand	CO 3	AIT512.13
7	What is top down estimation.	Understand	CO 3	AIT512.12
8	Define bottom up estimation.	Remember	CO 3	AIT512.12
9	What is macro plan? Write it use.	Understand	CO 3	AIT512.13
10	define micro plan and Write its use.	Understand	CO 3	AIT512.13
11	Define planning poker.	Understand	CO 3	AIT512.14
12	Define wideband Delphi.	Remember	CO 3	AIT512.14
13	What is Earned Value Method.	Remember	CO 3	AIT512.15
14	What is the procedure for Tracking the plan..	Understand	CO 3	AIT512.15
15	List out the various estimation techniques.	Remember	CO 3	AIT512.12
16	Define risk mitigation.	Remember	CO 3	AIT512.11
17	What is meant by risk monitoring.	Understand	CO 3	AIT512.11
18	Sketch risk plan template.	Remember	CO 3	AIT512.11
19	What is the procedure for document the plan.	Remember	CO 3	AIT512.15
20	What are the activities of WBS.	Understand	CO 3	AIT512.13
	Part – B (Long Answer Questions)			
1	Explain briefly the process of identifying risks.	Understand	CO 3	AIT512.11
2	Write detailed procedure for implementing risk prioritization.	Remember	CO 3	AIT512.11
3	Discuss in detail about Risk Mitigation Plans.	Understand	CO 3	AIT512.11
4	What is Estimation? Describe briefly various Estimation Techniques.	Understand	CO 3	AIT512.12
5	Distinguish between Use case Points and Function Points.	Understand	CO 3	AIT512.12
6	What is COCOMO II?? Explain briefly the use of COCOMO II model..	Remember	CO 3	AIT512.12
7	What are the key differences between Bottom-Up & Top-Down estimating approaches.	Understand	CO 3	AIT512.12

8	Write the Advantages and disadvantages of the top-down and bottom-up implementation approaches.	Understand	CO 3	AIT512.12
9	Describe the activities of Work Break Down Structure.	Understand	CO 3	AIT512.13
10	Discuss about Macro and Micro plans.	Remember	CO 3	AIT512.13
11	Explain the activities of Planning Poker effort estimation.	Understand	CO 3	AIT512.14
12	Explain Wideband Delphi technique.	Understand	CO 3	AIT512.14
13	Documenting the plan, Tracking the Plan.	Remember	CO 3	AIT512.15
14	Write advantages and disadvantages of Wideband Delphi technique.	Understand	CO 3	AIT512.14
15	Explain with an example the steps involved in Earned Value Method (EVM).	Understand	CO 3	AIT512.15
Part – C (Problem Solving and Critical Thinking)				
1	Use the COCOMO II model to estimate the effort required to build software for a simple ATM that produces 12 screens, 10 reports, and will require approximately 80 software components. Assume average complexity and average developer/environment maturity. Use the application composition model with object points.	Understand	CO 3	AIT512.12
2	You are managing a project which is into six months of its execution. You are now reviewing the project status and you have ascertained that project is behind schedule. The actual cost of Activity A is 2,00,000 and that of Activity B is 1,00,000. The planned value of these activities are □ 1,80,000 and 80,000 respectively. The Activity A is 100% complete. However, Activity B is only 75% complete. Calculate the schedule performance index and cost performance index of the project onthe review date.	Understand	CO 3	AIT512.13
3	Suppose a project manager or program manager want to canvas opinion and then reach a consensus on how our product can be the most successful product in the marketplace. The company invites the top 100 people within the organization to participate. Usingthe Wideband Delphi Method construct a questionnaire and agree on to the best possible wayforward.	Understand	CO 3	AIT512.14
4	An estimate is required for a new project of an R & D nature - and it has been decided to create the estimates using WBS - with an emphasis on accuracy of the estimates. Your project manager also indicates sufficient time is being made available to provide the estimates - what would be the best estimation approach in this case and why? 1.Parametric Estimation approach 2.Analogous Estimation approach 3.Top DownApproach 4.Bottom UpApproach	Understand	CO 3	AIT512.12
5	You are a project manager of a project. Till today you have actually completed $34,000 of work, but based on the cost plan it should be $50,000. What is percentage Schedule Variance (SV) in this case and why? 1.-32% 2.-16% 3.32% 4.10%	Understand	CO 3	AIT512.13
UNIT-IV				
CONFIGURATION AND QUALITY MANAGEMENT				
Part – A (Short Answer Questions)				
1	Define testing.	Remember	CO 4	AIT512.19
2	Define naming convention.	Remember	CO 4	AIT512.16
3	Write steps followed by Fagan inspection .	Remember	CO 4	AIT512.18
4	Define unit testing.	Remember	CO 4	AIT512.19
5	Define configuration control.	Understand	CO 4	AIT512.17

6	Define Quality Assurance.	Remember	CO 4	AIT512.17
7	What do you mean by system testing.	Understand	CO 4	AIT512.19
8	Define integration testing.	Understand	CO 4	AIT512.19
9	Define the Version control.	Understand	CO 4	AIT512.17
10	What do you mean by acceptance testing.	Understand	CO 4	AIT512.19
11	What are the types of peer review.	Remember	CO 4	AIT512.18
12	What do you mean by casual analysis.	Understand	CO 4	AIT512.20
13	What is mean by test case.	Understand	CO 4	AIT512.19
14	Define Walkthrough.	Understand	CO 4	AIT512.20
15	What is mean by bug tracking.	Remember	CO 4	AIT512.20
16	Define artifacts.	Understand	CO 4	AIT512.16
17	Sketch Fagan inspection.	Understand	CO 4	AIT512.18
18	Define configuration.	Remember	CO 4	AIT512.17
19	What is Peer Review.	Remember	CO 4	AIT512.18
20	Define test data.	Understand	CO 4	AIT512.19
Part – B (Long Answer Questions)				
1	Describe the steps to identify the artifacts to be configured.	Understand	CO 4	AIT512.16
2	Explain in detail about naming conventions.	Understand	CO 4	AIT512.16
3	Sketch the template that are used for version control.	Understand	CO 4	AIT512.17
4	With a neat diagram explain the processes involved in Configuration Control board.	Understand	CO 4	AIT512.17
5	State and explain Quality Assurance Techniques.	Remember	CO 4	AIT512.18
6	Describe Peer Review Characteristics.	Understand	CO 4	AIT512.18
7	Explain in details about Fagan inspection.	Remember	CO 4	AIT512.18
8	Discuss in detail about unit testing and regression testing with examples.	Understand	CO 4	AIT512.19
9	Describe System and Acceptance Testing with examples.	Remember	CO 4	AIT512.19
10	Distinguish between test data and test case with an example.	Understand	CO 4	AIT512.19
11	Explain significant steps in Bug Life Cycle with diagram.	Understand	CO 4	AIT512.20
12	Describe the activities of Causal analysis Resolution process.	Understand	CO 4	AIT512.20
13	Explain different types of testing methods used to check quality of software.	Remember	CO 4	AIT512.19
14	Discuss various test cases that are used in testing process and its role.	Understand	CO 4	AIT512.19
15	What should the Quality Assurance Documents contains?	Remember	CO 4	AIT512.17
Part – C (Problem Solving and Critical Thinking)				
1	You are project manager of a project. In the user testing phase the primary customer of a project has requested a change. What will be your NEXT action andjustify? 1.Create a formal change request 2.Ignore it 3.Create a risk plan and show it to the customer 4.Inform the project sponsor about the changes to scope	Understand	CO 4	AIT512.19
2	A project manager has created a document and wants some of the team member should have read access and some of them should have write access also. What The project manager should create and justify. 1.Configuration Management System 2.Project Management Information System 3.Project Management System 4.Control Management System	Understand	CO 4	AIT512.17
3	You are a project manager of a company. You are taking over a project during the planning process, and you discovered that many individuals have signed the project charter. Which of the following should be areas of concern for you? 1. Who will be a member of the change controlboard? 2. Who are the stakeholders for theproject?	Understand	CO 4	AIT512.17

	3. Need to spend more time on configurationmanagement. 4. Determining the reportingstructure.			
4	Which of the following is an example of the Perform Quality Assurance process? 1.Pareto chart 2.Quality Audits 3.Inspection 4.Cost of quality	Understand	CO 4	AIT512.17
5	Construct Test Cases for a Login Page (Includes ALL important functional and non-functional test cases for login page) There can be a username, password, „Sign In" button, Cancel Button, and Forgot Password link. There can be one more control which is a checkbox named „Remember me" to remember the login details on a particular machine.	Understand	CO 4	AIT512.19

UNIT-V				
SOFTWARE PROCESS DEFINITION AND MANAGEMENT				
Part - A (Short Answer Questions)				
1	List out the process elements.	Understand	CO 5	AIT512.21
2	Define process architecture.	Remember	CO 5	AIT512.21
3	Define process modeling.	Understand	CO 5	AIT512.22
4	How to model the software process.	Remember	CO 5	AIT512.21
5	How is CMMI different from CMM.	Remember	CO 5	AIT512.23
6	Define process assessment.	Remember	CO 5	AIT512.21
7	What are the notations used in ETVX.	Understand	CO 5	AIT512.23
8	Define process improvement.	Understand	CO 5	AIT512.21
9	List out the levels of CMMI.	Understand	CO 5	AIT512.23
10	State the process base lining.	Understand	CO 5	AIT512.23
11	Define CMMI.	Remember	CO 5	AIT512.23
12	What is six sigma.	Understand	CO 5	AIT512.23
13	What are the sub methodologies and activities used in six sigma.	Remember	CO 5	AIT512.23
14	What are the typical baseline components.	Understand	CO 5	AIT512.23
15	Explain Standard CMMI Assessment Method for Process Improvement (SCAMPI).	Remember	CO 5	AIT512.23
Part - B (Long Answer Questions)				
1	With a neat sketch, explain briefly the software process and relation between process elements.	Understand	CO 5	AIT512.22
2	Describe CMMI Continuous Representation with a neat diagram.	Understand	CO 5	AIT512.23
3	What is Process modeling? With a neat diagram explain in detail the purpose of process modeling.	Understand	CO 5	AIT512.22
4	Explain briefly about the product, role and conditions for a software process definition.	Understand	CO 5	AIT512.21
5	What is CMMI? Explain briefly each capability levels in CMMI with a neat diagram.	Understand	CO 5	AIT512.23
6	Discuss the typical baseline components corresponding to each baseline.	Understand	CO 5	AIT512.23
7	Explain different approaches for software process assessment and improvement.	Understand	CO 5	AIT512.21
8	Sketch the blueprint to deploy a software process architecture.	Understand	CO 5	AIT512.21
9	Describe briefly the six sigma methodology with examples.	Understand	CO 5	AIT512.23
10	Write in detail about the ETVX (entry-task-validation-exit).	Understand	CO 5	AIT512.23
11	Discuss briefly CMMI Stagged Representation with a neat diagram.	Understand	CO 5	AIT512.23
Part – C (Problem Solving and Critical Thinking)				
1	You are managing a project. This project must satisfy industry standards inordertobeacceptedbythecustomer.Youandyourteamhavestudied therequirementsandhavecreatedaplantoimplementthedeliverables	Understand	CO 5	AIT512.21

	with the level of quality. Among below which process to be used in this and why. 1.Quality Control 2.Quality assurance 3.Plan Quality 4.All of the above			
2	Which of the following is NOT the input of Direct and Manage Project Execution process and why? 1.Project Management Plan 2.Approved Change Requests 3.Enterprise Environmental Factors 4.Project Charter	Understand	CO 5	AIT512.22
3	Nowadays, patients look out for quality as a requirement choosing a healthcare service. In addition, patients can make more informed decisions about their treatments based on their experiences and levelof satisfaction. Justify the Six Sigma method plays a vital role in healthcare.	Understand	CO 5	AIT512.23
4	Adoption of Six Sigma and Lean is increasing among organizations that already employ CMMIbased software process improvement. These approaches are superficially different: – Language andterminology – Consultants andtraining – Sponsoring professionalsocieties • Are these approachesincompatible?	Understand	CO 5	AIT512.23
5	ETVX is a simple model used to define the requirements. ETVX stands for Entry Criteria, Tasks, Verification/Validation and Exit Criteria . while developing functional requirement for login process what are the steps to be followed for each page using ETVX model for a login screen.	Understand	CO 5	AIT512.23

Prepared by:
Mr. E. Sunil Reddy, Assistant Professor

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