SCHEME OF COURSE WORK

Course Details:

Course Title	**: OBJECT ORIENTED MODELING**		
Course Code	**: 15IT2103**	**L T P C**	**: 3 1 0 3**
Program:	**: M.Tech**		
Specialization:	**: Software Engineering**		
Semester	**: I**		
Prerequisites	**: Software Engineering**		
Courses to which it is a prerequisite	**: Software process and project management**		

Course Outcomes (COs):

1	Design a system.
2	Distinguish behavioral modeling diagrams.
3	Explain unified process and the four Ps of the process.
4	Outline the generic iteration workflow.
5	Explain phases in modeling.

Program Outcomes (POs):

A graduate of Information Technology will be able to

1	Ability to demonstrate in-depth knowledge of Software Engineering with analytical and synthesizing skills.
2	Ability to analyze complex problems critically and provide viable solutions.
3	Ability to evaluate potential solutions to a problem and arrive at optimal solutions.
4	Ability to apply research methodologies to develop innovative techniques for solving complex Information Technology related problems.
5	Ability to apply techniques and tools to solve complex problems.
6	Ability to work as an effective team member in a collaborative and multidisciplinary project to achieve common goals.
7	Ability to manage a software team and to maintain financial records as per standards.
8	Ability to effectively communicate with clients, peers and society at large.
9	Ability to take up lifelong learning to be in tune with the fast-changing software related technologies.
10	Ability to follow ethical practices in the software industry and accept social responsibility.
11	Ability to learn independently from mistakes and surge forward with positive attitude and enthusiasm.

Course Outcome Versus **Program Outcomes:**

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO-1	S		M		S			S			
CO-2		S							S		
CO-3			S								S
CO-4		S							S		
CO-5	S	S			M						

S - Strongly correlated, *M* - *Moderately* correlated, *Blank* - *No correlation*

Assessment Methods:	Assignment / Mid-Test / End Exam

Teaching-Learning and Evaluation

Week	TOPIC / CONTENTS	Course Outcomes	Sample questions	TEACHING-LEARNING STRATEGY	Assessment Method & Schedule
1	**Introduction to UML**: The meaning of Object Orientation,object identity, Encapsulation, information hiding, polymorphism, generosity,importance of modeling,principles of modeling,	CO-1	1. Give principles of modeling.	▫ Lecture ▫ PPT	Assignment (Week 4 - 6) Mid-Test 1 (Week 9)
2	object oriented modeling ,conceptual model of the UML, Architecture.**Basic Structural Modeling:** Classes, Relationships, common Mechanisms, and diagrams.	CO-1	1. Describe object oriented principles. 2.Explain basic building blocks in UML	▫ Lecture ▫ PPT	
3	**Class & Object Diagrams:** Terms, concepts, modeling techniques for Class & Object Diagrams.	CO-1	1. Describes the steps to forward and reverse engineer a class diagram.	▫ Lecture ▫ Discussion	
4	**Collaboration Diagrams:** Terms, Concepts, depicting a message, iterated messages, use of self in messages.	CO-2	1. Enumerate the steps to model the flow of control by organization.	▫ Lecture ▫ Discussion	
5	**Sequence Diagrams:** Terms, concepts, depicting asynchronous messages with/without priority, callback mechanism, broadcast messages	CO-2	1. Enumerate the steps to model the time ordering of messages.	▫ Lecture ▫ PPT	Mid-Test 1 (Week 9)
6	**Basic Behavioral Modeling:** Use cases, Use case Diagrams	CO-2	1. What is a use case. Explain use cases.	▫ Lecture ▫ PPT ▫ Discussion	
7	Activity Diagrams,**Advanced Behavioral Modeling:** Events and signals,State machines, processes and Threads, time and space, state chart diagrams.	CO-2	1. Discuss about activity diagrams. 2. Define signal? Enumerate the steps to model a family of signals?	▫ Lecture ▫ PPT ▫ Discussion	
8	**Architectural Modeling**: Component, Deployment,Component diagrams and Deployment diagrams.	CO-2	1. Enumerate the steps to model the following Modeling process and devices and distribution of	▫ Lecture ▫ PPT	

			components		
9	**Mid-Test 1**				
10	**The Unified process**: use case driven, architecture centric, iterative, and incremental **The Four Ps:** people, project, product, and process	CO-3	1. What are the 4p's in unified software development? Explain each. 2. Explain why the unified process is architecture centric?	▫ Lecture ▫ PPT	
11	**Use case driven process:** why use case, capturing use cases, analysis, design implementation to realize the use cases, testing the use cases	CO-3		▫ Lecture ▫ PPT	Assignment (Week 14 - 16) Mid-Test 2 (Week 18)
12	**Architecture-centric process:** architecture in brief, why we need architecture, use cases and architecture, the steps to architecture, an architecture description.	CO-3		▫ Lecture ▫ PPT	
13	**Iterative incremental process:** iterative incremental in brief, why iterative incremental development? The iterative approach is risk driven, the generic iteration	CO-4	1. Describe the risk impact on various work flows in an incremental process based development. 2. Explain the amount of testing carried out by the development phase using work flow model.	▫ Lecture ▫ PPT	
14	T**he Generic Iteration workflow:** phases are the firs division workflow, planning proceeds doing, risks affect project planning,use case prioritization, resource needed, assess the iteration and phases	CO-4		▫ Lecture ▫ PPT	
15	**Inception phase:** early in the inception phase, the archetypal inception iteration workflow, execute the core workflows, requirements to test.	CO-5		▫ Lecture ▫ PPT	Mid-Test 2 (Week 18)
16	**Elaboration Phase:** elaboration phase in brief, early in the elaboration phase, the architectural elaboration iteration workflow,Execute the core workflows-Requirements to test. **Construction phase:** early in the construction phase, the archetypal	CO-5	1. Give brief description about the archetypal inception iteration work flow. 2. Write short notes on the elaboration phase in brief.	▫ Lecture ▫ Discussion	

	construction iteration workflow, execute the core workflow				
17	**Transition phase:** early in the transition phase, activities in transition phase **Case Studies:** Automation of a Library Software Simulator application	CO-5	1. Construct and explain the component, deployment diagram for library automation system. 2. What are the activities of a transition phase for carrying the next iteration?	▫ Lecture ▫ Discussion	
18	**Mid-Test 2**				
19/20	**END EXAM**				