COURSE HANDOUT

B. Tech (CSE) –6th Semester

Course Title	: **OBJECT ORIENTED ANALYSIS AND DESIGN**	Dated:22-11-2017
Course Code	: IT 3414	Academic Year : 2017-18
Course Structure	: 3-1-0-4	
Course Coordinator	**:** Mrs.K.Srividya	
Instructor(s)	**:** Mrs.N.Lakshmi devi, Mr.P.Nagaraju,P.Srihari	
Pre-requisite	**:** Oops concepts,Software engineering	

Scope and Objective:
This course is designed for BTech VII Semester Students. The course is intended to make the students understand the basic concepts of OOAD and Unified Modelling Language.

The main objective of the course is to:

1. Learn the different building blocks of unified modeling language and the syntax of creating a model.

2. Extracting a system's requirements using a use-case driven approach

3. Building interaction diagrams that define the interactions among the objects that are required to achieve the desired system behavior

4. Model the system by different UML diagrams in order to understand the various aspects of the system

5. Know the principles of forward and reverse engineering.

Text Books:

1. Grady Booch, James Rumbaugh, IvarJacobson : The Unified Modeling Language User Guide, Pearson Education.
2. Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado: UML 2 Toolkit, WILEY-Dreamtech India Pvt. Ltd.

Reference Books:

1. Meilir Page-Jones: Fundamentals of Object Oriented Design in UML, Pearson Education.
2. Atul Kahate: Object Oriented Analysis & Design, The McGraw-Hill Companies.

4. Syllabus

UNIT – I **11+3**

Introduction to UML: Importance of modeling, principles of modeling, object oriented modeling,

Conceptual model of the UML, Architecture, Software Development Life Cycle.

Basic Structural Modeling: Classes, Relationships, common Mechanisms, and diagrams.

Advanced Structural Modeling: Advanced classes, advanced relationships, Interfaces, Types and Roles,Packages.

UNIT – II 12+4

Class & Object Diagrams: Terms, concepts, modeling techniques for Class & Object Diagrams.

Basic Behavioral Modeling-I: Interactions, Interaction diagrams.

UNIT-III 11+4

Basic Behavioral Modeling-II: Use cases, Use case Diagrams, Activity Diagrams.

Advanced Behavioral Modeling: Events and signals, state machines, processes and Threads, time and space, state chart diagrams.

UNIT-IV 11+4

Architectural Modeling: Component, Deployment, Component diagrams and Deployment diagrams.

Case Study: The Unified Library application.

Course Outcomes:At the end of the course students will be able to:

CO 1: Understand the use of unified modeling language for object oriented analysis and design.
CO 2: Know the syntax of different UML diagrams.
CO 3: Develop different models for a software system.
CO 4: Apply object oriented analysis and design to build a software system.
CO 5: Apply forward and reverse engineering for a software system.
CO 6: Learn architectural modeling, which will know components, deployment diagrams

Course Plan:

Lecture No.	Learning Objectives	Topics to be covered	Reference
	Unit – I : Introduction to UML		**15 HOURS**
1	To know About Modelling, 4 principles of modeling, object oriented approach to s/w development	Importance of modeling, Principles of modeling, object oriented modeling	**T1**
2	To understand UML's basic building blocks	Conceptual model of the UML	**T1**
3	To understand UML's basic rules	Conceptual model of the UML	**T1**
4	**Tutorial-1**		

5	To know about UML structure, behavior& Unified software development process	Architecture, Software Development Life Cycle	**T1**
6	To know about description of a class	Classes	**T1**
7	To know about description of a relationships	Relationships	**T1**
8	**Tutorial-2**		
9	To learn 4 common mechanisms	Common Mechanisms	**T1**
10	To learn about static Diagrams	Diagrams	**T1**
11	To learn about Dynamic Diagrams	Diagrams	**T1**
12	**Tutorial-3**		
13	To learn about Advanced classes, advanced relationships	Advanced classes, advanced relationships	**T1**
14	To learn about Interfaces, Types and Roles, Packages	Interfaces, Types and Roles, Packages	**T1**
UNIT – II Class & Object Diagrams			
15	To know static view of a system	Terms, concepts of class diagram	**T1**
16	**Tutorial-4**		
17	To learn about various modeling techniques	Modeling techniques for Class	**T1**
18	To learn about Object Diagrams	Terms and concepts Object Diagrams	**T1**

19	To know about the CMT'S	Common modeling techniques	**T1**
20	**Tutorial-5**		
21	To know the dynamic aspects	Interactions	**T1**
22	To specify about communication between objects	Interactions	**T1**
23	To learn about representation of interactions	Interactions	**T1**
24	**Tutorial-6**		
25	To learn Forward and Reverse engineering	Interactions	**T1**
26	To learn about sequence diagram	Interaction diagrams	**T1**
27	To discuss about the CMT's	Interaction diagrams	**T1**
28	**Tutorial-7**		
29	To learn about collabration diagram	Interaction diagrams	**T1**
30	To discuss about the CMT's	Interaction diagrams	**T1**
	UNIT-III Basic Behavioral Modeling-II		
31	To learn about Use cases	Use cases	**T1**
32	**Tutorial-8**		
33	To know Use cases and Collaborations	Use cases	**T1**
34	To learn about the Dynamic aspects of the system	Use case Diagrams	**T1**

35	To know the flow of activities	Activity Diagrams	**T1**
36	**Tutorial-9**		
37	To learn Common Modelling Techniques	Activity Diagrams	**T1**
38	To learn synchronous and asynchronous events	Events and signals	**T1**
39	To learn about emphasizing the flow of control of activities	State Machines	**T1**
40	**Tutorial-10**		
41	To learn about emphasizing the potential states of objects	State Machines	**T1**
42	To know about processes and threads	Processes and Threads	**T1**
43	To learn about Time and Space	Time and Space	**T1**
44	**Tutorial-11**		
45	To learn about State chart diagrams	State chart diagrams	**T1**
	UNIT-IV Architectural Modeling		
46	To know the modeling of physical aspects	Component	**T1**
47	To learn the CMT's of Component	Component	**T1**
48	**Tutorial-12**		
49	To know about nodes	Deployment	**T1**
50	To learn the CMT's ofDeployment	Deployment	**T1**

51	To learn organization among set of components	Component diagrams	**T1**
52	**Tutorial-13**		
53	To learn organization among set of components	Component diagrams	**T1**
54	To learn about the configuration of run time nodes	Deployment diagram	**T1**
55	To learn about the configuration of run time nodes	Deployment diagram	**T1**
56	**Tutorial-14**		
57	Case Study Class and Usecase	The Unified Library application	**T1**
58	Case Study Interaction and Activity Diagrams	The Unified Library application	**T1**
59	Case Study Component and deployment Diagrams	The Unified Library application	**T1**
60	**Tutorial-15**		

Evaluation Scheme:

Component	Duration (minutes)	Marks	% of weightage	Date & Time	Venue
Sessional Test – 1	90	20	20%	02.01.2018 to 06.01.2018	Block-5
Sessional Test – 2	90	20		19.02.2018 to 24.02.2018	Block-5
Sessional Test – 3	90	20		02.04.2018 to 07.04.2018	Block-5
Comprehensive Quiz Examination	20	10	10%	02.04.2018 to 07.04.2018	Block-5
Comprehensive Exam	**180**	**70**	**70%**	16.04.2018 to 28.04.2018	As per Exam Section

Chamber Consultation Hour: 4.00PM **Venue**: CSE Staff Room-2(5-S-05)
Notices: CSEMain Notice Board

N.Lakshmi Devi,P.Naga Raju, P.Srihari
Signature of the Instructors

K.Srividya
Signature of the Course-Coordinator