OBJECT ORIENTED ANALYSIS AND DESIGN

V Semester: CSE / IT

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
ACSB10	Core	3	-	-	3	30	70	100
Contact Classes: 45	Tutorial Classes: Nil	Practical Classes: Nil				Total Classes: 45		

OBJECTIVES:

The course should enable the students will try to learn:

I. The issues in analysis and design of software systems.
II. UML (2.0) notation and associated methodologies.
III. Use of UML metamodel – structural and behavioral diagrams, and their extensions.
IV. Forward engineering using UML

COURSE OUTCOMES:

At the end of the course, the students are able to:

CO 1 **List** the importance and use of basic principles in object-oriented modeling for appropriate analysis and design of given scenarios.
CO 2 **Make use of** building blocks and different views for creating conceptual model architectural view of system in unified software development life cycle.
CO 3 **Demonstrate** static and dynamic aspects of the system through UML diagrams for specifying structure and interaction of objects during runtime.
CO 4 **Identify** basic building blocks for visualizing objects of an object-oriented system.
CO 5 **Summarize** building blocks in structural and behavioral modeling of a software system for visualizing the relationships.
CO 6 **Classify** structural modeling of system for representing framework with UML diagrams.
CO 7 **Illustrate** behavioral modeling of system for conveying dynamic concepts of the system.
CO 8 **Categorize** behavioral modeling for visualizing flow control of objects and activities of specified case study like next gen POS system.
CO 9 **Make use of** common modeling techniques in UML for modeling of real time applications.
CO 10 **Develop** architectural model of a scenario for preparing outline of the entire system.
CO 11 **Model** software application like Unified Library with the help of UML diagrams for documenting static and dynamic aspects of a system.
CO 12 **Apply** knowledge of advanced computer science to formulate and analyze problems in computing and solve them.
CO 13 **Design** and conduct experiments as well as analyze and interpret data, alone or as a member of small group or team.

MODULE-I	INTRODUCTION TO UML	Classes: 10

Introduction to UML: Importance of modeling, principles of modeling, object oriented modeling, conceptual model of the UML, architecture, software development life cycle; Classes, relationships, common mechanisms and diagrams.

MODULE-II	ADVANCED BEHAVIORAL MODELING	Classes: 09
Advanced classes, advanced relationships, interfaces, types and roles, packages, terms, concepts; Class and Object Diagrams: Terms, concepts, common modeling techniques for class and object diagrams.		
MODULE-III	**ARCHITECTURAL MODELING**	**Classes: 08**
Basic Behavioral Modeling - I: Interactions, Interaction diagrams. Basic Behavioral Modeling-II: Use cases, Use case Diagrams, Activity Diagrams.		
MODULE-IV	**ADVANCED BEHAVIORAL MODELING**	**Classes: 09**
Events and signals, state machines, processes and threads, time and space, state chart and state chart diagrams. Case study: The next gen POS system		
MODULE-V	**ARCHITECTURAL MODELING**	**Classes: 09**
Component, Component diagrams, Deployment, Deployment diagrams; Case Study: The Unified Library Application.		

Text Books:

1. Grady Booch, James Rumbaugh, Ivar Jacobson, "The Unified Modeling Language User Guide", Pearson Education, 2nd Edition, 2004.
2. Craig Larman, "Applying UML and Patterns: An Introduction to Object Oriented Analysis and Design and Iterative Development", Pearson Education, 3rd Edition, 2005.

Reference Books:

1. MeilirPage-Jones: Fundamentals of Object Oriented Design in UML, Pearson Education, 1st Edition, 2006.
2. Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado, "UML 2 Toolkit", WILEY-Dreamtech India Pvt. Ltd., Pearson Education, 3rd Edition, 2005.

Web References:

1. https://www.tutorialspoint.com/uml/uml_overview.html
2. https://www.utdallas.edu/~chung/OOAD/M03_1_StructuralDiagrams.ppt
3. https://onedrive.live.com/download?cid=99CBBF765926367

E-Text Books:

1. https://www.utdallas.edu/UML2.0/Rumbaugh
2. https://www.utdallas.edu/~chung/SP/applying-uml-and-patterns.pdf