OBJECT ORIENTED ANALYSIS AND DESIGN

Course Code	**23CS4501A**	**Year**	III	**Semester**	I
Course Category	**Professional Elective**	**Branch**	**CSE**	**Course Type**	**Elective (Theory)**
Credits	**3**	**L – T – P**	**3-0-0**	**Prerequisites**	Software Engineering, Object Oriented Programming.
Continuous Evaluation:	**30**	**Semester End Evaluation:**	**70**	**Total Marks:**	**100**

Course Outcomes		
Upon successful completion of the course, the student will be able to:		
CO1	Understand the basic concepts of object-oriented analysis and design.	L2
CO2	Apply UML Structural Modeling concepts to develop class diagrams for a given Application.	L3
CO3	Apply UML concepts for developing behavioral diagrams and Architectural diagrams.	L3
CO4	Analyze the given case study and develop appropriate UML diagrams	L4

Syllabus

Unit No.	**CONTENTS**	**Mapped CO**
I	**Introduction:** The Structure of Complex systems, The Inherent Complexity of Software, Attributes of Complex System, Organized and Disorganized Complexity, Bringing Order to Chaos, Designing Complex Systems. **Case Study:** System Architecture: Satellite-Based Navigation.	**CO1**
II	**Introduction to UML:** Importance of modeling, principles of modeling, object oriented modeling, conceptual model of the UML, Architecture, and Software Development Life Cycle. **Basic Structural Modeling:** Classes, Relationships, common Mechanisms, and diagrams. **Case Study:** Control System: Traffic Management.	**CO1,CO2, CO4**
III	**Class & Object Diagrams:** Terms, concepts, modeling techniques for Class & Object Diagrams. **Advanced Structural Modeling:** Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages. **Case Study:** AI: Cryptanalysis.	**CO1,CO2, CO4**

IV	**Basic Behavioral Modeling-I:** Interactions, Interaction diagrams Use cases, Use case Diagrams, Activity Diagrams. **Case Study:** Web Application: Vacation Tracking System.	**CO1,CO3, CO4**
V	**Advanced Behavioral Modeling:** Events and signals, state machines, processes and Threads, time and space, state chart diagrams. **Architectural Modeling:** Component, Deployment, Component diagrams and Deployment diagrams. **Case Study:** Weather Forecasting.	**CO1,CO2, CO3,CO4**

Learning Resources
Text Books
1. Grady BOOCH, Robert A. Maksimchuk, Michael W. ENGLE, Bobbi J. Young, Jim Conallen, Kellia Houston , "Object- Oriented Analysis and Design with Applications", 3rd edition, 2013, PEARSON. 2. Grady Booch, James Rumbaugh, Ivar Jacobson: The Unified Modeling Language User Guide, Pearson Education.
Reference Books
1. Meilir Page-Jones: Fundamentals of Object Oriented Design in UML, Pearson Education. 2. Pascal Roques: Modeling Software Systems Using UML2, WILEY- Dreamtech India Pvt. Ltd. 3. Atul Kahate: Object Oriented Analysis & Design, The McGraw-Hill Companies. Appling UML and Patterns: An introduction to Object – Oriented Analysis and Design and Unified Process, Craig Larman, Pearson Education
E-Resources & other digital material
1. https://archive.nptel.ac.in/courses/106/105/106105153/ 2. https://github.com/topics/ood