- **Sem.** : 4
- **Subject Code** : 05BC1401
- **Subject** : Object Oriented Analysis and Design
- **Course Objectives** :

1. To teach the students standard and tested techniques widely embraced by experienced analysts plus new and emerging tools
2. To learn new and emerging tools and techniques that recent software professionals are expected to apply in the field.
3. Students should be able to work with the standard object oriented software development methodology using UML specific rules and standards.
4. to give balanced exposure to both traditional and object oriented approaches to system analysis and design.
5. To learn various case study for implementation of OOAD concepts.

- **Prerequisites** : Understanding of Object oriented languages and concepts.

Unit No	Topics Covered	No of lectures required
1	**Introduction** What is object orientation? What is OO Development? OO Themes. Usefulness of OO development. OO Modeling History. Modeling as a design Technique. Modeling, abstraction, The three models. Terms & concept of: Relationship, Common mechanism, Diagrams.	10
2	**Structural Modeling** Object and class concepts, links and association, generalization and inheritance, navigation of class models. Object diagrams : terms & concepts and its common modeling techniques	10

3	**Behavioral Modeling** State Modeling: Events, states, transitions and conditions, state diagrams, state diagram behavior. Terms and Concepts of Interactions, Use Cases Terms & concepts and its common Modeling techniques of Use Case Diagrams, Interaction Diagrams, Activity Diagrams.	**12**
4	**Architectural Modeling** Terms and concepts of Components , Deployment Terms & concepts and its common modeling techniques of Component Diagrams , Deployment Diagrams	**08**
5	**Case studies :** 1. ATM System 2. Vending Machine 3. E- Commerce Portal (e.g. amazon.in) 4. Inventory management system 5. Travel Portal (e.g. goibibo)	**08**

- **Course Outcomes :**
  1. Ability to discriminate what the UML is, what it is not, and why the UML is relevant to the process of developing software-intensive systems.
  2. Ability to apply rules, idioms and vocabulary of the UML
  3. Ability to use UML effectively in software development process
  4. Ability to prepare structural, behavioral and architectural model of a software
  5. Ability to apply the UML to solve common modeling problems

- **Course Outcomes – Program Outcomes Mapping Table :**

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO1		L	L				L		L		
CO2		M			L		L		L		L
CO3	M		M				M				
CO4	H	M	H	L	H			L		H	M
CO5	H	H	H	L				M			H

- **Text Book :**
  1. Object Oriented Modeling and Design using UML, Michael Blaha and James Rambaugh, Pearson Education, 2nd edition
  2. The Unified Modeling Language User Guide, Grady Booch, James Rumbaugh, Ivar Jacobson, Pearson Education

- **Reference Books :**
  1. UML 2 Bible, Tom Pender, Wiley-Dreamtech
  2. The UML Reference Manual, Ivar Jacobson, James Rumbaugh, Grady Booch, Addison Wesley
  3. Web reference of Object Management Group (OMG) http://www.uml.org/

- **Web References :**
  1. www.uml.org
  2. www.nptel.ac.in
  3. www.tutorialpoint.com

- **App References :**
  1. UML Tutorials
  2. Project Tutorial in UML

- **Syllabus Coverage from text /reference book & web/app reference:**

Unit No	Chapter Numbers
1	Book – 1 : Chapter – 1,2 Book – 2 : Chapter – 5,6,7
2	Book – 1 : Chapter – 3 Book – 2 : Chapter – 14
3	Book – 1 : Chapter – 5 Book – 2 : Chapter – 15,16,17,18,19
4	Book – 2 : Chapter – 25,26,29,30
5	Case study