

FACULTY OF COMPUTER APPLICATIONS
Bachelor of Science (Information Technology)
B.Sc. (IT)

- **Sem.** : 4
- **Subject Code** : 05BS0404
- **Subject** : Object Oriented Analysis and Design (OOAD)
- **Course Objectives** : The objective of this course is
 1. To teach the students standard and tested techniques widely embraced by IT industries.
 2. To learn new and emerging tools and techniques that recent software professionals are expected to apply in the IT field.
 3. To learn 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: Basic understanding of Object oriented programming languages and its 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. Modeling as a design Technique : Modeling, abstraction, The three models. The importance of Modeling, Principles of Modeling, Object Oriented Modeling Introduction of UML: Overview, Conceptual Model of UML.	10
2	Basic Structural Modeling Class Modeling : Concept of Object and class, links, association, generalization and inheritance, navigation of class models. Advanced Class Modeling : Multiplicity, Association Ends, Aggregation, Abstract Class, Object diagrams : terms & concepts and its common modeling techniques.	10

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3	Interaction Modeling Use case Model : Concept of Actors, Use Cases, Use Case diagram, Guidelines for Use Case Model Sequence Model : Concept of Scenarios , Sequence diagram, Guidelines for sequence model. Activity Model : Concept of Activities, Branches, Joining & Forking, Swimlanes, Activity diagrams.	10
4	Behavioral & Architectural Modeling State Modeling: Concept of Events, States, Transitions, State Diagrams. Component Diagram : Terms and Concepts, Kinds of Components, Common Modeling Techniques, Component diagrams Deployment Diagram : Terms and Concepts, Common Modeling Techniques , Deployment diagrams.	10
5	Case studies : <ul style="list-style-type: none"> • ATM System • Online Shopping Portal • Ticket Reservation System • Library Management System • Online Pizza ordering System • Travel Portal (e.g. goibibo) 	10

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
C01	L		L			M			L		
C02		H		M	L		L	M		M	L
C03	M					L	M				
C04	L	M	L		H			L	M	H	
C05	H		H	L				M			H



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Text Book :

- 1) Object Oriented Modeling and Design using UML, Michael Blaha and James Rumbaugh, 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 #	Chapter Numbers
1	Book - 1 : Chapter - 1,2 Book - 2 : Chapter - 1,2
2	Book - 1 : Chapter - 3 , 4 Book - 2 : Chapter - 14
3	Book - 1 : Chapter - 7 Book - 2 : Chapter - 19
4	Book - 1 : Chapter - 5 Book - 2 : Chapter - 25,26
5	Case study