# 20CS31E1 - OBJECT ORIENTED ANALYSIS AND DESIGN

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| Course Category: | Professional Elective | Credits: | 3 |
| Course Type: | Theory | Lecture-Tutorial-Practical: | 3-0-0 |
| Prerequisite: | Require software engineering basics and fundamentals of object oriented features. | Sessional Evaluation:  Univ. Exam Evaluation:  Total Marks: | 40  60  100 |
| Objectives: | * Specify, analyse and design the use case driven requirements for a particular system. * Model the event driven state of object and transform them into implementation specific layouts. * Identify, analyse the subsystems, various components and collaborate them interchangeably. | | |

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| Course Outcomes | Upon successful completion of the course, the students will be able to: | |
| CO1 | Know the importance of modeling and principles, architecture and software development life cycle. |
| CO2 | Learn about the basics and advanced structural modeling techniques. |
| CO3 | Draw the class and object diagrams for various applications. |
| CO4 | Gain knowledge about the basics of behavioral modeling and its applicability. |
| CO5 | Learn the state, time and space issues and supporting applicability. |
| CO6 | Study various component and deployment diagram properties for different applications. |
| Course Content | UNIT-I  **Introduction to UML:** The importance of modeling, Principles of modeling, Object oriented modeling, A conceptual model of the UML, Architecture, Software Development Life Cycle.  UNIT-II  **Basic Structural Modeling:** Classes, Relationships, Common Mechanisms and Diagrams.  **Advanced Structural Modeling1:** Advanced Classes, Advanced Relationships.  UNIT-III  **Advanced Structural Modeling2:** Interfaces, Types and Roles, Packages.  **Class & Object Diagrams:** Terms and Concepts, Common Modeling techniques for Class & Object Diagrams.  UNIT-IV  **Basic Behavioral Modeling:** Interactions, Interaction diagrams, Use cases, Use case diagrams, Activity diagrams.  UNIT-V  **Advanced Behavioral Modeling:** Events and Signals, State machines, Process and Threads, Time and Space, State chart diagrams.  UNIT-VI  **Architectural Modeling:** Components, Deployment, Component diagrams and Deployment diagrams. | |
| Text Books &  Reference  Books | **TEXT BOOKS:**   1. 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. AtulKahate: Object Oriented Analysis & Design, The McGraw-Hill Companies. | |
| E-Resources | 1. <https://nptel.ac.in/courses> 2. <https://freevideolectures.com/university/iitm> | |

**CO-PO Mapping:** 3-High Mapping, 2-Moderate Mapping, 1-Low Mapping, - -Not Mapping

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|  | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** |
| **CO1** | 2 | 1 | 1 | - | - | - | - | - | - | - | - | - |
| **CO2** | 3 | 2 | 2 | - | - | - | - | - | - | - | - | - |
| **CO3** | 3 | 2 | 2 | - | - | - | - | - | - | - | - | - |
| **CO4** | 3 | 2 | 2 | - | - | - | - | - | - | - | - | - |
| **CO5** | 3 | 2 | 2 | - | - | - | - | - | - | - | - | - |
| **CO6** | 3 | 2 | 2 | - | - | - | - | - | - | - | - | - |