

PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

(Autonomous)

Kanuru, Vijayawada-520007

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (Data Science)

III B. Tech – I Semester CSE (Data Science)

Object Oriented Analysis and Design

Course Code	20DS4501D	Year	III	Semester	I
Course Category	PEC	Branch	CSE(Data Science)	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	Software Engineering
Continuous Internal Evaluation	30	Semester End Examination	70	Total Marks	100

Course Outcomes

Upon successful completion of the course, the student will be able to

CO1	Describe the fundamental concepts of object-oriented modeling and analysis and its application in the software development life cycle.	L2
CO2	Apply UML diagrams to model the structural and behavioral aspects of software systems.	L3
CO3	Apply behavioral modeling techniques by developing interaction diagrams, use case diagrams, and activity diagrams to model dynamic aspects of software systems.	L3
CO4	Analyze the design trade-offs and architectural decisions involved in object-oriented software development to ensure the successful delivery of software projects.	L4

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:High, 2: Moderate, 1:Low)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2													
CO2	3											2		
CO3	3											2		
CO4		3										2		

Syllabus		
Unit No.	Contents	Mapped CO
I	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 and Traffic Management.	CO1
II	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 and Cryptanalysis.	CO1, CO2
III	Basic Behavioral Modeling: Interactions, Interaction Diagrams, Use Cases, Use Case Diagrams, Activity Diagrams. Case Study: Vacation Tracking System.	CO1, CO2, CO3
IV	Advanced Behavioral Modeling: Events and Signals, State Machines. Essentials: Initial, Final and Simple States, Processes and Threads, Traits of Successful Projects, Time and Space. State Chart Diagrams: State, Transition, Event, Action, Guard Condition.	CO1, CO2, CO4
V	Architectural Modeling: Component: Introduction to Components, Component Models and Standards, Design and Specification. Deployment: Deployment Environments, Strategies, Tools and Technologies, Component diagrams and Deployment diagrams. Case Study: Weather Forecasting	CO1, CO2, CO4

Learning Resources

Text Books

1. Object- Oriented Analysis and Design with Applications, Grady BOOCH, Robert A. Maksimchuk, Michael W. ENGLE, Bobbi J. Young, Jim Conallen, Kellia Houston, Third Edition, 2013, Pearson.

Reference Books

1. UML2 and the Unified Process: Practical Object-Oriented Analysis and Design, Jim Arlow, Ila Neustadt. Second Edition, 2015, Pearson.
2. Applying UML and Patterns, Craig Larman, Third Edition, 2017, Pearson.
3. UML Distilled: A Brief Guide to the Standard Object Modeling Language, Martin Fowler, Third Edition, 2018, Addison-Wesley Professional.

e- Resources & other digital material

1. Object Oriented Analysis and Design : <https://nptel.ac.in/courses/106105153>
2. Object Oriented Analysis and Design : https://onlinecourses.nptel.ac.in/noc19_cs48/preview
3. Object Oriented Analysis and Design:
: <https://archive.nptel.ac.in/courses/106/105/106105153/>
4. Object Oriented Analysis and Design:
https://www.youtube.com/playlist?list=PLT2n4HATwbe5EnHQ2NFBfNukTAgs_Hnf5
5. Object Oriented Analysis and Design:
https://www.youtube.com/playlist?list=PLAXUYU7PbJhhH0iWvtyD_J2L8mv15pchq
6. Object Oriented and Design by Kenny Wong(Coursera):
<https://www.coursera.org/learn/object-oriented-design>