

Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Sessional	Final Exam	Total
COM-702(A)	Object-Oriented Analysis and Design	PEC	3	3	0	0	50	100	150

Course Outcomes:

At the end of the course the students will be able to:	
CO1	Explain the concepts of OOAD, UML and SDLC in software development.
CO2	Apply use case modeling for different software development scenarios.
CO3	Apply OOP principles, design patterns, and UML for development.
CO4	Design optimized software systems with diverse architectural styles and patterns.
CO5	Analyze design models and apply OOP in coding and testing.

Detailed Syllabus

Section-A

UNIT 1: Introduction to Object-Oriented Analysis and Design (OOAD): Overview of object-oriented concepts and principles, Benefits of using object-oriented analysis and design, Introduction to the Unified Modeling Language (UML), Software development life cycle (SDLC) and OOAD. (10 Hrs.)

UNIT 2: Requirements Gathering and Analysis: Understanding and documenting user requirements, use-case modeling and analysis, Domain modeling and identifying objects, classes, and relationships, Creating a requirements specification document. (10 Hrs.)

UNIT 3: Object-Oriented Design: Class and object modeling using UML, Object-oriented principles: inheritance, polymorphism, encapsulation, and abstraction, Design patterns and their application, Component-based design and modularization. (12 Hrs.)

Section-B

UNIT 4: System Architecture and Design: Architectural styles and patterns, designing software systems with multiple components and layers, User interface design and usability considerations, Designing for performance, scalability, and maintainability. (10 Hrs.)

UNIT 5: Implementation and Testing: Translating design models into code, Object-oriented programming languages and frameworks Testing strategies and techniques, Integration testing and system testing. (10 Hrs.)

Textbooks

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Object-Oriented Analysis and Design with Application	Ph.D. Young, Bobbi , Grady Booch , Jim Conallen , Kelli Houston, Michael Engle, Robert Maksimchuk, John Fuller	Addition Wesley	3 rd (2017)
2	Object-Oriented Analysis and Design with UML	Grady Booch, Robert A. Maksimchuk, Michael W. Engel, Bobbi J. Young, Jim Conallen, Kelli A. Houston	Pearson Education	3 rd (2007)