

**Prasad V. Potluri Siddhartha Institute of Technology:: Vijayawada.
Department of Computer Science and Engineering**

I/II M.Tech. (CSE) (First Semester)

17CSCS1T5A OBJECT ORIENTED SOFTWARE ENGINEERING Credits: 4
Elective - I

Lecture: 4 Periods/week

Internal Assessment: 40 Marks
Semester end examination: 60 Marks

Course Description:

The main aim of the course is to cover various O-O concepts along with their applicability contexts for a given a problem, identify domain objects, their properties, and relationships among them. It also consists of identifying and modelling domain constraints on the objects on their relationships which are used for various design solutions of real world problems.

Course Outcomes:

At the end of the course, the student is able to:

- CO1:** Understand the entire Software Engineering Project Process, which consists of Object Oriented Analysis, Design, Programming and Testing
- CO2:** Apply the OO Concepts abstraction, Encapsulation, Inheritance, Hierarchy, Modularity and Polymorphism to the development of a robust design Model.
- CO3:** Use the UML to represent the design model
- CO4:** Design and implement software system using object-oriented software engineering paradigm.

Unit-1

Introduction to Classical Software Engineering: Introduction to OO Paradigm. Different phases in structured paradigm and OO Paradigm. Software Process and different life cycle models and corresponding strengths and weaknesses.

Planning and Estimation: COCOMO components of software, Project Management plan.

Unit-2

Tools for Step wise refinement: Cost - Benefit analysis, Introduction to software metrics and CASE tools. Introduction to testing with focus on Utility, Reliability, Robustness, Performance, Correctness.

Modules to objects: Cohesion and Coupling, Data Encapsulation and Information hiding aspects of Objects. Inheritance, polymorphism and Dynamic Binding aspects. Cohesion and coupling of objects. Reusability.

Unit-3

Requirement Phase: Rapid Prototyping method, Specification phase , Specification Document, Formal methods of developing specification document

Analysis Phase: Use case Modeling, Class Modeling, Dynamic Modeling, Testing during OO Analysis

Unit-4

Design phase: Data oriented design, Object Oriented design, Formal techniques for detailed design. One case study. Challenges in design phase

IIM Phases: Implementation, Integration and maintenance phases, OOSE aspects in these phases

TEXT BOOKS

1. Object oriented and Classical Software Engineering, 7/e, Stephen R. Schach, TMH
2. Object oriented and classical software Engineering, Timothy Lethbridge, Robert Laganier, TMH

REFERENCE BOOKS

1. Component-based software engineering: 7th international symposium, CBSE 2004, Ivica Crnkovic, Springer