

Devi Ahilya University, Indore, India Institute of Engineering & Technology			III Year B.E. (Computer Engineering)				
Subject Code & Name	Instructions Hours per Week			Credits			
CER5G3 Object Oriented Analysis & Design	L	T	P	L	T	P	Total
Duration of Theory Paper:3 Hours	3	1	2	3	1	1	5

Learning Objectives:

1. To learn object oriented analysis, modeling and design using UML.
2. To learn object oriented approach of software engineering.

Prerequisite:

Knowledge of object oriented programming and basics of software engineering.

COURSE CONTENTS

UNIT-I

Rational Unified Process, Process Notation, Introduction to UML, Business Modeling Workflow, Object Oriented Analysis: Requirements Overview, Problem Statement, Glossary, Supplementary Specifications, Analysis and Design Overview; Architectural Analysis overview, Use Case Analysis: finding classes from use case behavior, describe responsibility, attribute and association; qualify analysis mechanism.

UNIT-II

Importance of modeling, principles of modeling, object oriented modeling, conceptual model of the UML, Architecture, Software Development Life Cycle.

UNIT-III

Basic Structural Modeling: Classes, Relationships, common Mechanisms, and diagrams.
Advanced Structural Modeling: Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages.

UNIT-IV

Behavioral Modeling: Use cases, Use case Diagrams, Activity Diagrams, Events and signals, state machines, processes and Threads, time and space, state chart diagrams.

UNIT-V

Architectural Modeling: Architectural Analysis: Analysis Mechanisms, Key Abstractions, Pattern, Initial Architectural Layers, Component, Deployment, Component diagrams and Deployment diagrams.

Learning Outcomes:

After successfully completing this course you will be able to:

1. Describe Object Oriented Analysis and Design concepts and apply them to solve problems.
2. Prepare Object Oriented Analysis and Design documents for a given problem using Unified Modeling Language

BOOKS RECOMMENDED:

- [1] Grady Booch, Object Oriented Analysis & Design with Application, Pearson Education India 2nd Edition.
- [2] Scott W. Ambler, The Object Primer, Cambridge University Press, 2nd Edition.
- [3] Philippe Kruchten, The rational Unified Processes & Introduction Pearson Education India 2nd Edition.
- [4] Grady Booch, Games Rumbaugh, Ivar Jacobson, The Unified Modeling Language User Guide, Addison Wesley
- [5] M. Blaha, J. Rumbaugh, Object Oriented Modeling and Design with UML, Pearson Education 2nd Edition, 2007.

List of Practical Assignment:

1. To develop a problem statement.
2. Develop an IEEE standard SRS document. Also develop risk management and project plan (Gantt chart).
3. Identify Use Cases and develop the Use Case model.
4. Identify the business activities and develop an UML Activity diagram.
5. Identify the conceptual classes and develop a domain model with UML Class diagram.
6. Using the identified scenarios find the interaction between objects and represent them using UML Interaction diagrams.
7. Draw the State Chart diagram.
8. Identify the User Interface, Domain objects, and Technical services. Draw the partial layered, logical architecture diagram with UML package diagram notation.
9. Implement the Technical services layer.
10. Implement the Domain objects layer.
11. Implement the User Interface layer.
12. Draw Component and Deployment diagrams.

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