OBJECT ORIENTED ANALYSIS AND DESIGN

V Semester : IT

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
ACS009	Core	3	-	-	3	30	70	100
Contact Classes: 45	Tutorial Classes: 15	Practical Classes: Nil				Total Classes: 60		

I. COURSE OVERVIEW:

This course is intended to provide an in depth understanding of object-oriented approaches to software development, in particular to the analysis and design phase of the software life cycle. Topic include notation, methods, competing methodologies, issues in object-oriented development, and recent ad- vancements which complement traditional object-oriented methodologies

II. OBJECTIVES:

The course should enable the students to:

I	Develop the skills to analyze and design object-oriented problems.
II	Create design patterns to solve problems based on object oriented concepts.
III	Understand the various processes and techniques for building object-orientedsoftware systems.
IV	Prepare unified modeling techniques for case studies.

III. COURSE OUTCOMES:

After successful completion of the course, students should be able to:

CO 1	**List** the importance and use of basic principles in object oriented modeling for appropriate analysis and design of given scenarios.	Remember
CO 2	**Identify** basic building blocks for visualizing objects of anobject-oriented system	Apply
CO 3	**Summarize** building blocks in structural and behavioral modeling of asoftware system for visualizing the relationships	Understand
CO 4	**Make use of** building blocks and different views for creating conceptual model architectural view of system in unified softwaredevelopment life cycle	Apply
CO 5	**Design** and conduct experiments as well as analyze and interpret data, alone or as a member of small group or team	Create
CO 6	**Apply** design patterns and auto formulates and analyzes problems incomputing and solves them.	Apply

IV. SYLLABUS:

UNIT-I	STRUCTURAL MODELLING	Classes: 10

Introduction to UML: Importance of modeling, principles of modeling, object oriented modeling, conceptual model of the UML, architecture, software development life cycle; Classes, relationships, common mechanisms and diagrams.

UNIT-II	ADVANCED BEHAVIORAL MODELING	Classes: 08

Advanced classes, advanced relationships, interfaces, types and roles, packages, terms, concepts, modeling techniques for class and object diagrams; Interactions: Interaction diagrams; Use cases: Use case diagrams, activity diagrams.

UNIT-III	ARCHITECTURAL MODELING	Classes: 08

Events and signals, state machines, processes and threads, time and space.

State chart diagrams, component diagrams, deployment diagrams.

UNIT-IV	DESIGN PATTERN	Classes: 09

GRASP: Designing objects with responsibilities, creator, information expert, low coupling, high cohesion, design patterns, creational, factory method, structural, bridge, adaptor, behavioral, strategy.

UNIT-V	APPLYING DESIGN PATTENS	Classes: 10

System sequence diagrams, relation between sequence diagrams and use case logical architecture and UML package diagram, logical architecture refinement; Case study: The next gen POS system, inception, use case modeling, relating use cases, include, extend and generalization, domain models, domain model refinement.

Text Books:

1. Grady Booch, James Rumbaugh, Ivar Jacobson, "The Unified Modeling Language User Guide", Pearson Education, 2nd Edition, 2004.
2. Craig Larman, "Applying UML and Patterns: An Introduction to Object Oriented Analysis and Design and Iterative Development", Pearson Education, 3rd Edition, 2005.

Reference Books:

1. Simon Bennett, Steve Mc Robb and Ray Farmer, "Object Oriented Systems Analysis and Design Using UML", McGraw-Hill Education, 4th Edition, 2010.
2. Pascal Roques, "Modeling Software Systems Using UML2", WILEY- Dreamtech India Pvt. Ltd, 2nd Edition, 2007.

Web References:

1. https://www.tutorialspoint.com/uml/uml_overview.html
2. https://www.utdallas.edu/~chung/OOAD/M03_1_StructuralDiagrams.ppt
3. https://onedrive.live.com/download?cid=99CBBF765926367

E-Text Books:

1. https://www.utdallas.edu/UML2.0/Rumbaugh
2. https://www.utdallas.edu/~chung/SP/applying-uml-and-patterns.pdf

Course Home Page: