OBJECT ORIENTED ANALYSIS AND DESIGN PATTERNS

VI Semester: CSE

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
ACS015	Core	3	1	-	4	30	70	100
Contact Classes: 45	**Tutorial Classes: 15**	**Practical Classes: Nil**				**Total Classes:60**		

I. COURSE OVERVIEW:

This course emphasizes on the design and construction of software systems using Unified ModelingLanguage as a tool that view a system as a set of objects to realize the systems functionality. This course includes object-oriented analysis and design techniques that impact the implementation of software systems. Learned skills will be applied to the development of project and the analysis of real-world object-oriented systems.

II. OBJECTIVES:

The course should enable the students to:

I	Applying UML meta models in analysis and design of software
II	Transformation of use cases into object oriented software realization throughobject oriented analysis and design using UML
III	Constructing forward and reverse engineering using case tools.
IV	Developing application of OOAD practices from a software project managementperspective.

III. COURSE OUTCOME:

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

CO 1	**Demonstrate** basic principles, building blocks and different views for designing conceptual model and architectural views ofthe system.	Understand
CO 2	**Make use of** architectural modeling diagrams for studying static aspects of the system.	Apply
CO 3	**Construct** behavioral modeling diagrams for studying dynamic aspects of the system.	Apply
CO 4	**Utilize** creational, structural and behavioral design patterns to solve design problems in real time applications.	Apply
CO 5	**Organize** architectural and domain model representation of next gen POS system by using system sequence and use case diagrams.	Apply
CO 6	**Identify** structural, behavioral modeling in designing and appropriate design patterns to solve design problems in real-time applications.	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		
UNIT-II	**ADVANCED BEHAVIORAL MODELING**	**Classes: 08**
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, low coupling, high cohesion, design patterns, creational, factory method, structural, behavioral, strategy.		
UNIT-V	**APPLYING DESIGN PATTENS**	**Classes: 10**
System sequence diagrams, logical architecture refinement; domain models, domain model refinement Case study: The next gen POS system, inception.		

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 McRobb, Ray Farmer, "Object Oriented Systems Analysis and Design Using UML", Tata McGraw-Hill Education, 4th Edition, 2010.
2. Pascal Roques, "Modeling Software Systems Using UML2 ", WILEY Dreamtech India Pvt. Ltd, 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: