ITE1007	Object Oriented Analysis and Design	L	T	P	J	C
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Pre-requisite	**CSE1002**	**Syllabus version**				
		1.0				

Course Objectives:

- To learn the basic principles of object orientation and notation
- To familiarize Unified Modeling Language
- To understand the Analysis and Design workflow

Expected Course Outcome:

1) Understand and analyse the fundamentals of Object oriented design elements.
2) Comprehend the limitations of object oriented analysis and design.
3) Implement different techniques available for object modeling techniques based on the limits and features.
4) Analyzie the objects and elements required for efficient design.
5) Provide design solutions to various case studies by applying modelling techniques.
6) Analyze and design unified modeling diagrams for various case studies.
7) Map Unified modeling diagrams to the analysis and design components.

Student Learning Outcomes (SLO):	**2, 5, 6**
[2]	Having a clear understanding of the subject related concepts and of contemporary issues
[5]	Having design thinking capability
[6]	Having an ability to design a component or a product applying all the relevant standards and with realistic constraints

Module:1	**Introduction**	**6 hours**

Structure of Complex Systems, Decomposing Complexity - Elements of Analysis and Design, Object Modeling - Unified Process - Phases of Unified Process.

Module:2	**Object Oriented Paradigm**	**6 hours**

Benefits and Risks of Object Oriented Development, Macro and Micro Process Development, Object Interoperability- Designing Interface Objects.

Module:3	**Methodology and Modeling**	**6 hours**

Object Oriented Methodologies-Rumbaugh et al.'s object modeling technique-The Booch Methodology-The Jacobson et al. Methodologies, Discussion on few Examples of OOAD Application Scenarios-Choosing a case study for OOAD.

Module:4	**Object Oriented Analysis**	**6 hours**

Elements of Analysis – Requirements Workflow – Analysis Workflow

Module:5	**Object Oriented Design**	**6 hours**
Elements of Design – O-O Design Workflow – Mapping of Elements onto Phases of Unified Process – UML Diagrams for Design – Iterations – Case Study.		
Module:6	**Design using UML Diagrams –Phase I**	**6 hours**
Introduction to UML as an Analysis and Design Tool, Class Diagrams, State Transition Diagrams, Object Diagrams, Interaction Diagrams, Use case Diagrams, Activity Diagrams, Collaboration Diagrams and Module Diagrams.		
Module:7	**Design using UML Diagrams –Phase II**	**6 hours**
Component Diagram, Deployment Diagrams – Mapping of Diagrams to Analysis and Design Components.		
Module:8	**Contemporary issues:**	**3 hours**
	Total Lecture hours:	**45 hours**

Text Book(s)	
1.	Grady Booch, Robert A. Maksimchuk , Michael W. Engle, Bobbi J. Young, Jim Conallen, Kelli A. Houston, Object Oriented Analysis and Design with Application, 3rd edition, Addison Wesley, 2012.
2.	Morris Mano, Digital logic and Computer design, 4th Edition, Pearson, 2008.
Reference Books	
1.	Ali Bahrami, Object Oriented System Development, Tata McGraw-Hill, 2012.
2.	Grady Booch, Ivar Jacobson, James Rumbaugh, The Unified Modelling Language User Guide, Second Edition, Pearson, 2012.

Recommended by Board of Studies	05-03-2016		
Approved by Academic Council	No. 40	Date	18-03-2016