III B.Tech II Semester

15ACS32-OBJECT ORIENTED ANALYSIS AND DESIGN

L	T	P	C
3	1	0	3

Course Objectives:

a. *To understand how to solve complex problems*
b. *Analyze and design solutions to problems using object oriented approach*
c. *Study the notations of Unified modeling language*

UNIT I: Introduction to UML Basics:

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

Basic Structural Modeling: Classes, Relationships, commonMechanisms, and diagrams.Advanced Structural Modeling: Advanced classes, advancedrelationships, Interfaces, Types and Roles, Packages.

UNIT II :Requirements& Modeling

Object Constraint Language - Inception – Evolutionary Requirements– Domain Models – System Sequence Diagrams – Operation Contracts.

UNIT III: Principles of Designing

Requirements to Design –Design Patterns – Logical Architecture – Package diagram – Design patterns – Model, View, Control pattern – Detailed design – Object design with GRASP pattern – Detailed class diagram with Visibility.

UNIT IV :Mapping to Code

Mapping designs to code – Test Driven development and refactoring – UML Tools and UML as blueprint.

Case Studies – the Next Gen POS system, Online Bookshop - A Multi-Threaded Airport Simulation.

UNIT V :Applying Design Patterns

More Patterns – Analysis update – Objects with responsibilities – Applying design patterns – Architectural Analysis – Logical Architecture Refinement – Package Design –Persistence framework with patterns.

Course Outcomes:

a. *Find solutions to the complex problems using object oriented approach*
b. *Represent classes, responsibilities and states using UML notation*
c. *Identify classes and responsibilities of the problem domain.*

TEXT BOOKS:

1. The Unified Modeling Language User Guide, Grady Booch, James Rumbaugh, Ivar Jacobson, Pearson Education.
2. UML 2 Toolkit, Hans-Erik Eriksson, Magnus Penker, Brian Lyons,DavidFado, WILEY-Dreamtech India Pvt. Ltd.
3. MichaelBlaha and James Rumbaugh, "Object-oriented modeling and design with UML",Prentice-Hall of India, 2005.
4. Craig Larman. "Applying UML and Patterns – An introduction to Object-Oriented Analysisand Design and Iterative Development", 3rd ed, Pearson Education, 2005.

REFERENCES:

1. Ali Bahrami, "Object Oriented Systems Development", McGraw-Hill, 1999.
2. Booch, Grady. Object Oriented Analysis and Design. 2nd ed. Pearson Education 2000.
3. Fowler, Martin. UML Distilled. 3rd ed. Pearson Education. 2004.
4. Lunn, Ken. Software development with UML. Palgrave Macmillan. 2003.
5. O'Docherty, Mike. Object-Oriented Analysis &Design.Wiley. 2005.