K L University
Department of Electronics & Computer Engineering
M.Tech (Embedded Systems)

Course No.   : 15-EM51B2
Course Title   : Object Oriented Analysis & Design
Course Structure   : 3-0-0
SYLLABUS:
UNIT I:
Methodology, Modeling: Object-oriented Methodologies; Rumbaugh et al.'s Object Modeling Technique; The Booch Methodology; The Jacobson et al. Methodologies; Patterns; Frameworks; The Unified Approach.

UNIT II:
Unified Modeling Language: Introduction; Static and Dynamic Models; Modeling ; Introduction to the Unified Modeling Language; UML Diagrams; UML Class Diagram; Use-Case Diagram; UML Dynamic Modeling; Model Management: Packages and Model Organization; UML Extensibility; UML Meta-Model.

UNIT III:
Object-Oriented Analysis: Use-Case Driven: Object-Oriented Analysis Process: Identifying use cases: Introduction; Why Analysis is a Difficult Activity; Business Object Analysis: Understanding the Business Layer; Use-Case Driven Object-Oriented Analysis: The Unified Approach; Business Process Modeling; Use-Case Model; Developing Effective Documentation; Case-Study: Analyzing the Via Net Bank ATM-The Use-Case Driven Process. **Classification:** Introduction; classifications Theory; Approaches for Identifying Classes; Noun Phrase Approach; Common Class Patterns Approach; Use-Case Driven Approach: Identifying Classes and Their Behaviors through Sequence/Collaboration Modeling; Classes, Responsibilities, and Collaborators.

UNIT IV:
Identifying Object Relationships, Attributes, And Methods: Introduction; Associations; Super-Sub Class Relationships; A-Part-of Relationships-Aggregation; Case Study: Relationship Analysis for the Via Net Bank ATM System; Class Responsibility: Identifying Attributes and Methods; Class Responsibility: Defining Attributes by Analyzing Use Cases and Other UML Diagrams; Defining Attributes for Via Net Bank Objects; Object Responsibility: Methods and Messages; Defining Methods for Via Net Bank Objects. **The Object-Oriented Design Process And Design Axioms:** Introduction; The Object-Oriented Design Process; Object-Oriented Design Axioms; Corollaries.

UNIT V:
Designing Classes: Introduction; The Object-Oriented Design Philosophy; UML Object Constraint Language; Designing Classes: The Process; Class Visibility: Designing Well-Defined Public, Private, and Protected Protocols; Designing Classes: Refining Attributes; Refining Attributes for the Via Net Bank Objects; Designing Methods and Protocols; Designing Methods for the Via Net Bank Objects; Packages and Managing Classes. **View Layer:** Designing Interface Objects: Introduction; User Interface Design as a Creative Process; Designing View Layer Classes;
Macro-Level Process: Identifying View Classes by Analyzing Use Cases; Micro-Level Process.

Text Books:
(1) Object Oriented Systems Development by Ali Bahrami Tata McGraw Hill
    International Editions, Computer Science Series.
Reference Books:
(1) Unified Modeling Language Reference Manual, James Rumbaugh, Jacobson, Booch, PHI.
(2) The Unified Software Development Process, Ivar Jacobson, Grady Booch, James Rumbaugh, Pearson Education.