

**Objective:**

To learn the concepts of Object Oriented Analysis and Design; exposing the development of OOAD based applications

**Unit I:**

*Overview of System Analysis and Design:* System definition & concepts, System models, Systems development life cycle, Feasibility analysis, Project selection plan and proposal, Prototyping, Cost-benefit analysis.

**Unit II:**

Concept of structured analysis, Tools of structured analysis-Data flow diagrams, Data dictionaries, Structured English, Decision Trees and Decision Tables.

*System Design:* Process and stages of System Design, Logical and Physical Design, Process modelling with physical and logical DFD"s, System flow charts and structured charts, Data modelling with ERD"s.

**Unit III:**

*Modular and Structured Design:* Modularization, Module specification, Module coupling and cohesion, Top-down and Bottom-up design. Testing and validation System quality control and assurance, Reviews and walkthroughs, Maintenance activities and issues, Audit trails and system security.

**Unit IV:**

*Analysis and Design in Object-oriented Platforms:* An Overview of Object Oriented Systems Development

Object Basics – Object Oriented Systems, Introduction object modeling, Object oriented analysis and design through object modeling techniques, Dynamic modeling and functional modeling, Process of Object oriented design, Object oriented programming systems for implementation, Object oriented databases.

**Unit V:**

Rumbaugh Methodology - Booch Methodology - Jacobson Methodology - Patterns – Frameworks – Unified Approach – Unified Modeling Language – Use case - class diagram - Interactive Diagram - Package Diagram - Collaboration Diagram - State Diagram - Activity Diagram. Identifying use cases - Object Analysis - Classification – Identifying Object relationships - Attributes and Methods.

Design axioms - Designing Classes – Access Layer - Object Storage - Object Interoperability. Designing Interface Objects – Software Quality Assurance – System Usability - Measuring User Satisfaction

**Text Books**

1. Systems Analysis and Design (Prentice Hall) –by Dr. Kenneth E Kendall, Julie E Kendall
2. Ali Bahrami, "Object Oriented Systems Development", Tata McGraw-Hill, 1999
3. Martin Fowler, "UML Distilled", Second Edition, PHI/Pearson Education, 2002.

**References**

1. Stephen R. Schach, "Introduction to Object Oriented Analysis and Design", Tata McGraw Hill, 2003.
2. James Rumbaugh, Ivar Jacobson, Grady Booch "The Unified Modeling Language Reference Manual", Addison Wesley, 1999.

**Course Outcome:**

Students will be able to:

1. Define the fundamentals of OO approach
2. Design OO Application using design patterns.
3. Solve real world problems by applying OOAD principle
4. Acquire expertise in Java Programming