

**Hemchandracharya North Gujarat University, Patan**  
**B.E. SEMESTER – IV (CE)**

**CE402: OBJECT ORIENTED ANALYSIS DESIGN AND UML**

**Teaching Scheme**

Theory 4 hrs/week

Tutorial -

Practical 02 hrs/week

Total 06 hrs/week

**Examination Scheme**

Theory 100 Marks

Practical 25 Marks

Term Work 25 Marks

Total 150 Marks

1. **Introduction:**  
About Object Orientated Technology, Development and OO Modeling History.
2. **Modeling Concepts:**  
Modeling design Technique, Three models, Class Model, State model and Interaction model.
3. **Class Modeling:**  
Object and class concepts, link and association, Generalization and Inheritance, Advanced class modeling- aggregation, Abstract class metadata, constraints.
4. **State Modeling:**  
Event, state, Transition and conditions, state diagram, state diagram behavior, concurrency, Relation of Class and State models.
5. **Interaction Modeling:**  
Use case Models, sequence models, activity models
6. **Analysis and Design:**  
Development Life cycle, Development stages, Domain Analysis-Domain class model, domain state model, domain interaction model, Iterating and analysis. Application Interaction model, Application class model, Application state Model, Adding operation.
7. **System Design:**  
Estimating Performance, Making a reuse plan, breaking system into subsystems ,identifying concurrency, allocation of subsystems, management of data storage, Handling Global resources, choosing a software control strategy, Handling boundary condition, common Architectural style.
8. **Class design:**  
Overview of class design, designing algorithms recursing downward, refactoring, design optimization, Adjustment of Inheritance, Reification of Behavior.

**Reference Books:**

1. Oriented Modeling and Design with UML second edition by Michael Blaha and James Rumbaugh