

## CS338 OBJECT ORIENTED ANALYSIS AND DESIGN LAB

### Course Description & Objective:

The analysis, design, coding, documentation, database design of mini project which will be carried out in 4<sup>th</sup> year can be done in object-oriented approach using UML and by using appropriate software which supports UML.

### Course Outcomes:

After completing this course the student must demonstrate the knowledge and ability to:

- Show the importance of systems analysis and design in solving complex problems.
- Show how the object-oriented approach differs from the traditional approach to systems analysis and design.
- Construct various UML models (including use case diagrams, class diagrams, interaction diagrams, statechart diagrams, activity diagrams, and implementation diagrams) using the appropriate notation.
- Recognize the difference between various object relationships: inheritance, association, whole-part, and dependency relationships.
- Show the role and function of each UML model in developing object-oriented software.

### Mini-Project - I :

**A Point-of-Sale (POS) System** :A POS system is a computerized application used to record sales and handle payments; it is typically used in a retail store, it includes hardware components such as a computer and bar code scanner, and software to run the system. It interfaces to various service applications, such as a third-party tax calculator and inventory control. These systems must be relatively fault tolerant; that is, even if remote services are temporarily unavailable they must still be of capturing sales and handling at least cash payments. A POS system must support multiple and varied client-side terminals and interfaces such as browser, PDAs, touch-screens.

**Mini-Project - II :**

**Online Bookshop Example :**Following the model of amazon.com or bn.com, design and implement anonline bookstore.

**Mini-Project - III :**

**A Simulated Company :** Simulate a small manufacturing company. The resulting application will enable the user to take out a loan, purchase a machine, and over a series of monthly production runs, follow theperformance of their company.

**Mini-Project - IV :**

**A Multi-Threaded Airport Simulation :**Simulate the operations in an airport. Your application shouldsupport multiple aircrafts using several runways and gates avoiding collisions/conflicts.

**Landing:** an aircraft uses the runway, lands, and then taxis over to the terminal.

**Take-Off:** an aircraft taxiesto the runway and then takes off.

**Mini-Project - V :**

**An Automated Community Portal :**Business in the 21st Century is above all BUSY. Distractions areeverywhere. The current crop of “enterprise intranet portals” is often high noise and low value, despite thelarge capital expenditures it takes to stand them up. Email takes up 30 - 70% of an employee’s time. Chatand Instant Messaging are either in the enterprise or just around the corner. Meanwhile, management istasked with unforeseen and unfunded leadership and change-agent roles as well as leadership developmentand succession management. What is needed is a simplified, repeatable process that enhancescommunications within an enterprise, while allowing management and peers to self-select future leaders andeasily recognize high performance team members in a dynamic way. Additionally, the system shouldfunction as a general-purpose content management, business intelligence and peer-review application.Glasscode’s goal is to build that system. The software is released under a proprietary license, and will havethe following features: Remote, unattended moderation of discussions However, it will have powerfuldiscovery and business intelligence features, and be infinitely extendable, owing to a powerful API andadherence to Java platform standards. Encourages peer review and indicates for management potentialleaders, strong team players and reinforces enterprise and team goals seamlessly and with zeroadministration.

**Mini-Project - VI :**

**A Content Management System :** The goal is to enable non-technical end users to easily publish, access, and share information over the web, while giving administrators and managers complete control over the presentation, style, security, and permissions.

**Features:**

- Robust Permissions System
- Templates for easy custom site designs
- Total control over the content
- Search engine friendly URL's
- Role based publishing system
- Versioning control
- Visitor profiling

**Mini-Project - VII :**

**An Auction Application :** Several commerce models exist and are the basis for a number of companies like eBay.com, priceline.com etc. Design and implement an auction application that provides auctioning services. It should clearly model the various auctioneers, the bidding process, auctioning etc.

**Mini-Project - VIII :**

**A Notes and File Management System :** In the course of one's student years and professional career one produces a lot of personal notes, documents. All these documents are usually kept on papers or individual files on the computer. Either way the bulk of the information is often erased, corrupted, and eventually lost. The goal of this project is to build a distributed software application that addresses this problem. The system will provide an interface to create, organize and manage personal notes through the Internet for multiple users. The system will also allow users to collaborate by assigning permissions for multiple users to view and edit notes.

**Mini-Project - IX :**

**Library Management System(LMS):** The goal is to enable students and librarians to easily access and manage the library and run it smoothly. Each physical library item - book, tape cassette, CD, DVD, etc. could have its own item number. To support it, the items may be barcoded. The purpose of barcoding is to provide a unique and scannable identifier that links the barcoded physical item to the electronic record in the catalog.

Barcode must be physically attached to the item, and barcode number is entered into the corresponding field in the electronic item record. Barcodes on library items could be replaced by RFID tags. The RFID tag can contain item's identifier, title, material type, etc. It is read by an RFID reader, without the need to open a book cover or CD/DVD case to scan it with barcode reader.

**Mini-Project - X**

**Hospital Management System:** Simulate to show and explain hospital structure, staff, and relationships with patients, and patient treatment terminology

**TEXT BOOK :**

1. Craig Larman, "Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and the Unified Process", 2nd ed., Pearson Education Asia, 2002.

**REFERENCE BOOKS:**

1. Simon Sennet, Steve McRobb, and Ray Farmer, "Object Oriented Systems Analysis and Design using UML", 2nd ed., McGraw Hill, 2002.
2. Andrew Haigh, "Object-Oriented Analysis & Design," 1st ed., Tata McGraw-Hill, 2001.