CHENNAI INSTITUTE OF TECHNOLOGY

Department of Computer Science & Engineering

Software Development Lab

Major Equipments available in the Lab

S. No.	Hardware	Specification	Quantity
1	Desktops	Intel Core 2 Duo Processor, 2GB RAM, 250 GB HDD	30 Nos.
Software			
2	JDK1.8/C++, Windows 7 or higher , ArgoUML that supports UML 1.4 and higher, Selenium, JUnit or Apache JMeter , Oracle		

Courses Offered

S.No.	ODD Semester	Class	No. of Sessions	EVEN Semester	Class	No. of Sessions
1	Object Oriented Programming Laboratory	III sem CSE	4	Database Management Systems Laboratory	IV sem CSE	4
2	Object Oriented Analysis and Design Laboratory	V sem CSE	4			
Percentage of Lab Utilization : 80%				Percentage of Lab Utilization : 40%		

**CS8383   OBJECT ORIENTED PROGRAMMING   III Sem CSE
LABORATORY**

List of Experiments

02. Develop a java application to implement currency converter (Dollar to INR, EURO to INR, Yen to INR and vice versa), distance converter (meter to KM, miles to KM and vice versa) , time converter (hours to minutes, seconds and vice versa) using packages.

03. Develop a java application with Employee class with Emp_name, Emp_id, Address, Mail_id, Mobile_no as members. Inherit the classes, Programmer, Assistant Professor, Associate Professor and Professor from employee class. Add Basic Pay (BP) as the member of all the inherited classes with 97% of BP as DA, 10 % of BP as HRA, 12% of BP as PF, 0.1% of BP for staff club fund. Generate pay slips for the employees with their gross and net salary.

04. Design a Java interface for ADT Stack. Implement this interface using array. Provide necessary exception handling in both the implementations.

05. Write a program to perform string operations using ArrayList. Write functions for the following a) Append - add at end b) Insert – add at particular index
        c) Search   d) List all string starts with given letter

06. Write a Java Program to create an abstract class named Shape that contains two integers and an empty method named print area(). Provide three classes named rectangle, triangle and circle such that each one of the classes extends the class shape. Each one of the classes contains only the method print Area () that prints the area of the given shape.

07. Write a Java program to implement user defined exception handling.

08. Write a Java program that reads a file name from the user, displays information about whether the file exists, whether the file is readable, or writable, the type of file and the length of the file in bytes.

09. Write a java program that implements a multi-threaded application that has three threads. First thread generates a random integer every 1 second and if the value is even, second thread computes the square of the number and prints. If the value is odd, the third thread will print the value of cube of the number.

10. Write a java program to find the maximum value from the given type of elements using a generic function.

11. Design a calculator using event-driven programming paradigm of Java with the following options. a) Decimal manipulations b) Scientific manipulations.

12. Develop a mini project for any application using Java concepts.

CS 8582	OBJECT ORIENTED ANALYSIS AND DESIGN LABORATORY	V Sem CSE

Objectives:

- To capture the requirements specification for an intended software system.
- To draw the UML diagrams for the given specification.
- To map the design properly to code.
- To test the software system thoroughly for all scenarios.
- To improve the design by applying appropriate design patterns.

Outcomes:

- Perform OO analysis and design for a given problem specification.
- Identify and map basic software requirements in UML mapping.
- Improve the software quality using design patterns and to explain the rationale behind applying specific design patterns.
- Test the compliance of the software with the SRS.

List of Experiments

01. Identify a software system that needs to be developed.
02. Document the Software Requirements Specification (SRS) for the identified system.
03. Identify use cases and develop the use case model.
04. Identify the conceptual classes and develop a domain Model and also derive a class diagram from that.
05. Using the identified scenarios, find the interaction between objects and represent them using UML Sequence and Collaboration Diagrams.
06. Draw relevant State Chart and Activity Diagrams for the same system.
07. Implement the system as per the detailed design.
08. Test the software system for all the scenarios identified as per the usecase diagram.
09. Improve the reusability and maintainability of the software system by applying appropriate design patterns.
10. Implement the modified system and test it for various scenarios.

CS8481   DATABASE MANAGEMENT SYSTEMS   IV Sem CSE
LABORATORY

Objectives:

- To understand data definitions and data manipulation commands
- To learn the use of nested and join queries
- To understand functions, procedures and procedural extensions of data bases.
- To be familiar with the use of a front end tool.
- To understand design and implementation of typical database applications.

Outcomes:

- Use typical data definitions and manipulation commands.
- Design applications to test nested and join queries.
- Implement simple applications that use views.
- Implement applications that require a front-end tool.
- Critically analyze the use of tables, views, functions and procedures.

List of Experiments

01. Data Definition Commands, Data Manipulation Commands for inserting, deleting, updating and retrieving tables and transaction control statements.
02. Database querying – simple queries, nested queries, sub queries and joins.
03. Views, Sequences, Synonyms.
04. Database Programming: Implicit and Explicit Cursors.
05. Procedures and Functions.
06. Triggers.
07. Exception Handling.
08. Database Design using ER modeling, normalization and Implementation for any application.
09. Database Connectivity with Front End Tools.
10. Case Study using real life database applications.

CS8383   OBJECT ORIENTED PROGRAMMING   III Sem CSE
LABORATORY

Objectives:

- To build software development skills using java programming for real-world applications.
- To understand and apply the concepts of classes, packages, interfaces, arraylist, exception handling and file processing.
- To develop applications using generic programming and event handling.

Outcomes:

- Develop and implement Java programs for simple applications that make use of classes, packages and interfaces.
- Develop and implement Java programs with array list, exception handling and Multithreading.
- Design applications using file processing, generic programming and event handling.

List of Experiments

01. Develop a Java application to generate Electricity bill. Create a class with the following members: Consumer no., consumer name, previous month reading, current month reading, type of EB connection (i.e domestic or commercial). Compute the bill amount using the following tariff. If the type of the EB connection is domestic, compute the bill amount to be paid as follows:

    First 100 units - Rs. 1 per unit
    101-200 units - Rs. 2.50 per unit
    201 -500 units - Rs. 4 per unit
    501 units - Rs. 6 per unit

    If the type of the EB connection is commercial, calculate the amount to be paid as follows:

    First 100 units - Rs. 2 per unit
    101-200 units - Rs. 4.50 per unit
    201 -500 units - Rs. 6 per unit
    501 units - Rs. 7 per unit.