10B11CI614: Object Oriented System & Programming

Course Credit: 4
Semester: VI

Introduction

Course Objectives (Post-conditions)
Knowledge objectives:

1. To use object modeling technique to analyze problem requirements, design a solution to the problem and then implement the solution in Object-Oriented Programming Language(s) or database.
2. To strengthen their problem solving ability by applying the characteristics of an object-oriented approach.
3. To strengthen ability to design and represent solutions to problems using UML notations.
4. To introduce object oriented concepts in C++ and Java.

Application objectives:

1. To learn the Unified Modeling Language (UML): Use Case Diagrams, State Diagrams, Sequence Diagrams, Communication Diagrams, and Activity Diagrams.
2. To learn the concepts of Objects, Classes, Methods, Constructors and Destructors
3. To learn the designing of complex classes: Friend Functions and Static member functions, Inline functions, constant functions.
4. To learn File Handling. Writing and reading data from the file, reading and writing the objects into the file.
5. To learn Inheritance: Single Inheritance, Multiple Inheritance, Multi-level Inheritance, Hierarchical Inheritance and Hybrid Inheritance.
6. To learn the concept of Abstract classes and interfaces.
7. To learn the Exception Handling: try --catch and finally block, making user-defined exceptions.
8. Basic principles of Software engineering. System analysis, design, testing and debugging.
9. To learn the Database Environment: Relational Model. ER Modeling, Normalization, Structured Query Language and Database connectivity.

Expected Student Background (Preconditions)

Introduction to Computer Programming

Topics Outline:

S NO	Topics	Hrs
1	O-O paradigm.	2

2	Unified Modeling Language: (Use Case Diagrams, State Diagrams, Sequence Diagrams, Communication Diagrams, Activity Diagrams)	6
3	Objects, Classes, Methods, Constructors and Destructors.	3
4	Friend Functions and Static members functions.	2
5	File Handling.	2
6	Inheritance in C++ and Java	2
7	Abstract classes in C++ and Java.	2
8	Interfaces in JAVA.	1
9	Exception Handling in C++ and Java.	3
10	Basic principles of Software engineering. System analysis, design, testing and debugging.	4
11	Database Environment. Relational Model. ER & EER Modeling, Normalization.	6
12	Structured Query Language	5
13	Database Connectivity	1
14	Transaction Processing	3
	Total	42

References

1. Lafore R., Object oriented programming in C++, Waite Group
2. Java 2: The Complete Reference, Fifth Edition -- by Herbert Schildt
3. Satzinger, Jackson, Burd, Object-Oriented Analysis & Design.
4. Stroustrap B., The C++ Programming Language, Addison Wesley
5. Bruce Eckel, Thinking in C++
6. Bruce Eckel, Thinking in Java
7. Bipin C Desai, Database Management System.

Evaluation Scheme:

S.No	Examination	Marks
1	T-1	15
2	T-2	25
3	T-3	35
4	*Internal Marks	25

*Internal Marks Breakdown:

Assignments 9 marks (3x3)

Quizzes 12 marks (3x4)

Regularity 4 Marks