Birla Institute of Technology & Science, Pilani
Hyderabad Campus

Second Semester 2024-2025
Course Handout – Part II

Date: 06.1.2025

In addition to Part-I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the course.

Course Number : CS F213
Course Title : Object Oriented Programming
Instructor In-Charge : Prof. Abhijit Das
Instructors : Prof. Aruna Malapati, Prof. Subhrakanta Panda

1. Scope of the course:

The scope of this course includes basics of Object Oriented Concepts; Fundamentals of Object model; Essential features of Object model; Classes and Objects; Operations/Methods and Messages; Abstraction mechanism; Inheritance; Polymorphism; Multithreading; Exception handling; I/O; Event handling; Object serialization; Process of Object Oriented Design; Design Patterns; Brief introduction to other Object Oriented Applications (other than Java). Important point to be noted is that the important Object Oriented Concepts like- Exceptions, Multithreading, IO etc., are understood by working with Java.

2. Course objectives:

- To provide the student with an understanding of the need for Object Oriented Paradigm.
- To gain knowledge on important features of Object Orientation with the help of Java (through hands-on lab experience), including I/O, Multithreading, Swing and Exception Handling
- To gain basic knowledge on Object Oriented Design methodology, and notations in modeling.
- To get a rough idea about Object Oriented Design Patterns.

3. Text Book:

T1: The object-oriented thought process, Matt Weisfeld, Third Edition, Addison-Wesley, 2013.
T2: Object-Oriented Programming and Java, Danny Poo, Derek Kiong, Swarnalatha Ashok, Second Edition, Springer, 2008.

4. Reference Books:

R1. The Complete Reference- Java, 7th Edition, Herbert Schildt, Tata McGraw Hill Publishing.
R2. Object Oriented Analysis and Design with Applications, Grady Booch, Addison Wesley, 2nd Edition.
R3. The Unified Modeling Language User Guide, the ultimate tutorial to the UML from the Original Designers, G Booch, J Rumbaugh, I Jacobson, Pearson Education, 2006.

5.Course Plan

Lecture No.	Learning Objectives	Topics Covered	Chapters
	Introductory class	NA	NA
1-2	To understand the need for Object Oriented Programming Paradigm	Introduction to Object Oriented Concepts and Principles	T1: Ch.1 & 2; T2: Ch.1 and Class notes
3-8	To learn the fundamentals of Object model in terms of classes and methods	Object Model	T1: Ch.1 & 2; T2: Ch.1 and Class notes
9-12		Classes and Objects, Inheritance and Polymorphism,	T1: Ch.1 & 2; T2: Ch.2; R1: Ch.6 & 7; R2: Ch.3 and Class notes
13-14		Encapsulation and Data hiding	T1: Ch.1 & 2; R1: Ch.2; and Class notes
15-16		Methods and Messages	T1: Ch.1 & 2; R1: Ch.6 & 7; R2: Ch.3; and Class notes
17-18	Introducing students to Object Oriented Analysis and Design activity in the context of UML	Process of Object Oriented Design	T1: Ch.10; R2: Ch. 2-5; R3 for notations; and Class notes
19-22		Object Oriented Design Patterns	T1: Ch.15 and Class notes
23-26	To familiarize with OOP based GUI development	Making GUI in java for further concepts	T1: Ch.7; T2: Ch.6 &7; R1: Ch.7 & 8
27-28	To learn Java Exception handling mechanism	Exception Handling essentials	T2: Ch.9; R1: Ch.10
29-32	To understand multithreading concepts and apply it through Java programming	Multithreading and Synchronization concepts	T2: Ch.11; R1: Ch.11; and class notes
33-36	To learn and work with IO streams in Java	I/O Streams	T2: Ch.10; R1: Ch.13 & 19
33-36		Object Serialization	T1: Ch.12; R2: Ch.19
37-42	To understand some important Classes in java.lang and java.util packages including Java Collection framework	java.lang classes and java.util classes	Various sources

6. Evaluation

Component	Duration	Nature	Date & Time	Weightage
Mid-semester Test	90 Mins.	Closed Book	03/03 4.00 - 05.30PM	35%
Mini-project	Take home	Open Book	To be announced	5%
Lab Exam	60 Mins	Open Book	Continuous evaluation	15% (minimum of 5% evaluation will be done by midsem)
Comprehensive Exam	180 Mins.	Closed Book	02/05AN	45%

7. Make-up Policy:

Make-up for Mid-semester test may be given for genuine cases with prior permission by IC, and after rigorous scrutiny. For the Comprehensive exam, make-up has to be approved and scheduled by AUGSD and will be allowed under <u>extreme conditions</u> only.

8. Course Notices
All notices pertaining to this course will be displayed on the Google Classroom, as applicable.

9. Chamber Consultation: To be announced.

10. **Academic Honesty and Integrity Policy**: Academic honesty and integrity are to be maintained by all the students throughout the semester and no type of academic dishonesty is acceptable.

Instructor-In-Charge, CS F213