Birla Institute of Technology & Science, Pilani
Hyderabad Campus

Second Semester 2023-2024
Course Handout – Part II

Date: 09.01.2024

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 : Dipanjan Chakraborty
Additional Instructors: Aritra Mukherjee, Abhijit Das

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 Languages (other than 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 the Java programming language, 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 Complete Reference- Java, 12th Edition, Herbert Schildt, Tata McGraw Hill Publishing, 2023.
T2: The Object-Oriented Thought Process, Matt Weisfeld, Fifth Edition, Addison-Wesley, 2023.

4. Reference Books:

R1. Object Oriented Analysis and Design with Applications, Grady Booch, Addison Wesley, 2nd Edition.
R2. 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.
R3. Head First Java, Kathy Sierra, Bert Bates and Trisha Gee. O'Reilly, 3rd Edition, 2023.

5.Course Plan

Lecture No.	Learning Objectives	Topics Covered	Chapters
1-3	To understand the need for Object Oriented Programming Paradigm	Introduction to Object Oriented Concepts and Principles	T1: Ch 1; T2: Ch.1 & 2; and Class notes
4-8	To learn the fundamentals of Object model in terms of classes and methods	Object Model	T1: Ch 6; T2: Ch.1 & 2; and Class notes
9-12		Classes and Objects	T1: Ch 6; T2: Ch.1 & 2; R1: Ch.3 and Class notes
13		Encapsulation and Data hiding	T1: Ch 6, 7; T2: Ch.1 & 2; and Class notes
14-15		Methods and Messages	T1: Ch 7, 8; T2: Ch.1 & 2; R1: Ch.3; and Class notes
16-17	To understand the basics of class hierarchies in Object Orientation	Classification and Abstraction mechanism, Introduction to Swing	T1: Ch 31, 32, 33; T2: Ch.1 & 2; and Class notes
18-20		Inheritance and Polymorphism, making GUI in java for further concepts	T1: Ch 7, 8; T2: Ch.7
21-25	To understand multithreading concepts and apply it through Java programming	Multithreading and Synchronization concepts	T1 Ch 11; and class notes
26-28	To learn Java Exception handling mechanism	Exception Handling essentials	T1 Ch 10;
29-32	To learn and work with IO streams in Java	I/O Streams	T1: Ch.13, 19
33		Object Serialization	T1: Ch 21, T2: Ch.12; R1: Ch.19
34-35	To understand some important Classes in java.lang and java.util packages including Java Collection framework	java.lang classes and java.util classes	T1: Ch 18
36-38	Introducing students to Object Oriented Analysis and Design activity in the context of UML	Process of Object Oriented Design	T2: Ch.10; R1: Ch. 2-5; R2 for notations; and Class notes
39		Object Oriented Design Patterns	T2: Ch.15 and Class notes
40-41	To provide an overview of other popular Object Oriented Programming Languages	Object oriented Programming languages (overview)	R1: Appendix; and Class notes
42		Conclusion	

6. Evaluation

Component	Duration	Mode	Date & Time	Weightage
Mid-semester Test	90 Mins.	Closed Book	15/03 - 11.00 - 12.30PM	30%
Mini Assignments (3 no.s)	Take home	Open Book	To be announced	15%
Major Assignment	Take home	Open Book	To be announced	15%
Comprehensive Exam	180 Mins.	Closed Book	16th May, 2024, AN	40%

*40% of the Evaluation will be completed by Mid Semester Grading.

7. Make-up Policy:

Make-up requests for the mid-semester and comprehensive examinations will be thoroughly scrutinised and the decision of the I/C will be final. No make-up will be allowed for other components.

8. Course Notices

All announcements will be made in the classes only. It is incumbent on the students to apprise themselves about the announcements.

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