Birla Institute of Technology & Science, Pilani
Hyderabad Campus

FIRST SEMESTER 2021-22
COURSE HANDOUT (PART II)

Date: 20/08/2021

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 : **Dr. D V N Siva Kumar**
Instructors : Prof. R Gururaj, Prof. Aruna Malapati, Ms. Deepa Kumari, Mr. Pattiwar Shravan Kumar, Ms. T Sahithi and Mr. Chillara Anil Kumar

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; Exception handling; Multithreading; I/O; Event handling; Object serialization; Process of Object Oriented Design; Design Patterns. 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).
- To gain basic knowledge on Object Oriented Analysis & Design patterns.

3. Text Book:

T1: Object Oriented Design and Patterns, 2nd Edition, Cay Hortsmann, Wiley, 2005.

4. Reference Books:

R1. The Complete Reference- Java, 11th Edition, Herbert Schildt, McGraw-Hill, 2019.
R2. Object Oriented Analysis and Design with Applications, 3rd Edition, Grady Booch, R. A. Maksimchuk, M.W. Engle, B.J. Young, Jim Connalen, K.A. Houston, Addison- Wesley, 2007.
R3. The Unified Modeling Language User Guide, 2nd Edition, Grady Booch, James Rumbaugh, Ivar Jacobson, Pearson, 2017.
R4. Java How to Program, 11th Edition, Paul Deitel, Harvey Deitel, Pearson, 2017.

5.Lecture Schedule:

Lecture No.	Learning Objectives	Topics to be covered	Chapter in the Text Book
		MODULE-1	
1	Getting introduced to the course content, evaluation components, objectives, and outcomes.	General introduction to the course	-
2-6	To understand the need for Object-Orientated Programming Paradigm	Introduction to Object-Oriented Paradigm	T1- Ch.2&3; R2-Ch. 2-4; and Class notes
7- 10	To learn the fundamentals of Object model in terms of classes and methods	Object Model	T1-Ch.2 ; R2- Ch.2
		Classes and Objects	T1- Ch.2&3; R1-Ch.6,7; R2-Ch.3
		Classification and Abstraction mechanism, Encapsulation and Data hiding	T1.Ch.2; R2- Ch.4; T1-Ch.3; R1.ch.2; and Class notes
		Methods	T1.Ch.3; R1-Ch.6,7 ; R2-Ch.3; and Class notes
11-15	To understand the basics of class hierarchies in Object Orientation	Packages, Inheritance, Polymorphism and Interfaces	T1 –Ch.6; R1.Ch.8&9; R4-Ch.10
Self-Study	To understand the use of Selection Statements	If statements, Nested if statements, Boolean expressions and variables, comparing objects, switch statements	R1-Ch.5
Self-Study	To understand the use of Repetition Statements	While statement, do-while statement, for and nested for statements, estimating the execution time, recursive methods (To be discussed in Tutorial classes)	R1-Ch.5
16-19	To understand and apply characters and string concepts for problem solving	Characters, strings, comparing strings, string Buffer and string Builder, Pattern matching and regular expressions.	R1- Ch.13, Ch.17; R4 – Ch. 14
20-22	To learn Java Exception handling mechanism and assertions	Catching exceptions, throwing exceptions and multiple catch blocks, propagating exceptions, Types of exceptions, programmer-defined exceptions, Assertions.	T1.Ch.1.8; R1-Ch.10; R4-Ch. 11, Class Notes
		MODULE-2	
23-27	To understand and apply array and collection framework classes for problem solving	Array basics, array of objects, for-each loop, 2D-arrays, searching, sorting, Collection Framework: Iterators, ArrayList and HashMap.	R1-Ch.3, Ch.19; R4- Ch. 7
28-30	To understand multithreading concepts and apply it through Java programming.	Multithreading and Synchronization concepts	T1 –Ch.9; R1- Ch.11; and class notes
31-33	To understand and apply IO stream classes for problem solving	I/O Streams	R1- Ch.13 and Ch.21
		Object Serialization	T1.Ch.7.5; R2- Ch.19
34-37	To create GUI based applications.	GUI components and Event handling mechanisms	R1-Ch. 24, Ch.25, Ch.26
38-41	To learn and apply different design	Object Oriented Analysis and	T1- Ch.5, Ch.6; R3- Ch.12,

	patterns	Design Patterns	Ch.13, Ch.14
42	To be able to access Databases with JDBC	JDBC connection	R4-Ch.24

6. Evaluation

Component	Duration	Date & Time	Weightage	Nature of Component
Mid-Semester	1.5 Hrs.	To be announced by TT Division	30%	Open Book
Quiz (1 No.)	30 mins	Pre Mid semester	10%	Closed Book
Continuous Lab Evaluation (CLE)		Weekly Lab Assignments to be given by the Instructors based on various topics covered in the LAB.	5%	Open Book
Lab Project (LP)		To be Announced in Course Portal	15%	Open Book
Comprehensive	2 Hrs.	27/12 FN	40%	Open Book

7. Make-up Policy

No make-up for CLE, LP. For any other genuine reasons other than medical, prior approval from the IC is mandatory. Requests coming after the test will not be honored. Guidelines by AUGSD will be followed in this regard**.** The above mentioned rules will be followed very strictly.

8. Course Notices

All notices pertaining to this course will be displayed on the Course portal (CMS).

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