BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI-HYDERABAD CAMPUS
SECOND SEMESTER 2019-20
COURSE HANDOUT (PART II)

Date: 06/01/2020

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. S. Panda
Instructor : Mr.Surendar Singh Samanth

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:

- 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 Design methodology, and notations in modeling.
- To get a rough idea about Object Oriented Design Patterns.

3. Text Book:

T1: Object Oriented Design and patterns, Cay Hortsmann, Wiley, 2004.

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.Lecture Schedule:

Lecture No.	Learning Objectives	Topics to be Covered	Chapter in the Text Book
1-2	To understand the need for Object Orientated Programming Paradigm	Introduction to Object Oriented Concepts and Principles	T1.Ch.2 ; R2-Ch.1 and Class notes
3- 6	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 and Messages	T1.Ch.3; R1-Ch.6,7 ; R2-Ch.3; and Class notes
7-8	To understand the basics of class hierarchies in Object Orientation	Inheritance and Polymorphism	T1 –Ch.6; R1.Ch.7&8
9-11	To understand the use of Selection Statements	If statements, Nested if statements, Boolean expressions and variables, comparing objects, switch statements	R1-Ch.5
12-14	To understand the use of Repetition Statements	While statement, do-while statement, for and nested for statements, estimating the execution time, recursive methods (optional)	R1-Ch.5
15-17	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, Class Notes
18-20	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.24
21-24	To understand and apply array and collection framework classes for problem solving	Array basics, array of objects, for-each loop, passing arrays to methods, 2D-arrays, Lists and Maps	R1-Ch.3, Ch.15
25-28	To understand and apply sorting and searching mechanisms	Searching methods, sorting methods, Heap sort	Class Notes
29-32	To create GUI programming	Applet Fundamentals, and AWT	R1-Ch. 12, Ch.20, Ch.21
33-35	To understand multithreading concepts and apply it through Java programming and work with IO streams in Java	Multithreading and Synchronization concepts	T1 –Ch.9; R1- Ch.11; and class notes
		I/O Streams	R1- Ch.13 and Ch.19
		Object Serialization	T1.Ch.7.5; R2- Ch.19
36-37	Introducing students to Object Oriented Analysis and Design activity in the context of UML	Process of Object Oriented Design	T1- Ch.2&3; R2-Ch. 2-5; R3 for notations; and Class notes
38-39		Object Oriented Design Patterns	T1- Ch.5&11
40-42	To learn Python	Introduction to Python	Class notes

		Programming	

5. Evaluation

Component	Nature of Component	Date & Time	Weightage
Mid-Semester	Closed Book	6/3 1.30 -3.00 PM	20%
Quiz (Surprise quiz tests during Lectures)	Open Book		10%
LAB: 1.Lab Exam (LE) 2. Continuous LAB Evaluation (CLE) 3. Mini-Project	Open Book	**Lab Exam: 26-04-2020, 9.00AM-2.00PM**	15% 10% 5%
Comprehensive	Closed Book	13/05 FN	40%

6. Make-up Policy

For genuine reasons other than medical, prior approval from the IC is mandatory. Requests coming after the test will not be honored. For make-up on medical grounds, first inform the warden about the illness and take his help for consulting the doctor, and finally Chief Hostel Warden's recommendation is a must and such students should not leave the campus during Test dates (please refer to the guidelines by ID in this regard). ***No make-up will be given by just producing some medical prescription.*** The above mentioned rules will be followed very strictly.

7. Course Notices

All notices pertaining to this course will be displayed on the CS&IS Notice Board.

8. Chamber Consultation

To be announced.

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