BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI-HYDERABAD CAMPUS

**FIRST SEMESTER 2019-20**

**COURSE HANDOUT (PART II)**

**01/08/2019**

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. R. Gururaj**

**Instructor : Dr. Barsha Mitra, Dr. Sudeepta Mishra,**

**Mrs. T Sahithi, Mrs.Priyanka and Mrs. BSAS Rajita**

**1. Scope of the course:**

The scope of this course includes basics of Object Orientated 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.Course Plan**

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| **Lecture No.** | **Learning Objectives** | **Topics Covered** | **Chapter in the Text Book** |
| **1-3** | 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 |
| **4-8** | To learn the fundamentals of Object model in terms of classes and methods | Object Model | T1.Ch.2 ; R2- Ch.2 |
| **9-12** | Classes and Objects | T1.Ch.2&3; R1-Ch.6,7;  R2-Ch.3 |
| **13** | Encapsulation and Data hiding | T1-Ch.3; R1.ch.2; and Class notes |
| **14-15** | Methods and Messages | T1.Ch.3; R1-Ch.6,7 ; R2-Ch.3; and Class notes |
| **16-17** | To understand the basics of class hierarchies in Object Orientation | Classification and Abstraction mechanism | T1.Ch.2; R2- Ch.4; |
| **18-20** | Inheritance and Polymorphism | T1 –Ch.6; R1.Ch.7&8 |
| **21-25** | To understand multithreading concepts and apply it through Java programming | Multithreading and Synchronization concepts | T1 –Ch.9; R1- Ch.11; and class notes |
| **26-28** | To learn Java Exception handling mechanism | Exception Handling essentials | T1.Ch.1.8; R1-Ch.10 |
| **29-32** | To learn and work with IO streams in Java | I/O Streams | R1- Ch.13 and Ch.19 |
| **33** | Object Serialization | T1.Ch.7.5; R2- Ch.19 |
| **34-37** | 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 |
| **40-41** | To provide an overview of other popular Object Oriented Programming Languages | Object oriented Programming languages (overview) | R2-Appendix; and Class notes |
| **42** |  | Conclusion |  |

**5. Evaluation**

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| **Component** | **Duration** | **Weightage** | **Date & Time** | **Nature of Component** |
| Mid-semester Exam | 90 Mins. | 25% | 4/10, 11.00 -- 12.30 PM | Closed Book |
| Mini-project  (with viva) | Take home | 15% | To be announced | Open Book |
| End-semester Lab Exam | 1 Hr. | 15% | 24-11-2019 | Open Book |
| Comprehensive Exam | 3 Hrs. | 45% | 11-12-2019 AN | Closed Book |

**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 Timetable and Exams 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 CMS/CS&IS Notice Board.

**8. Chamber Consultation:** To be announced.

9. **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**