Birla Institute of Technology & Science, Pilani
K. K. Birla Goa Campus
First Semester 2018-2019
Course Handout (Part II)

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 ID: **CS F213**

Course Title: **Object Oriented Programming**

Instructor: **Dr. Rahul Thakur** (rahult@goa.bits-pilani.ac.in) **(A-406)**
Prof. Neena Goveas (neena@goa.bits-pilani.ac.in) **(A-409)**

1. Course Objectives and Scope

This course provides the students with an understanding of the object-oriented programming paradigm. The topics include Introduction to Object Oriented Programming, Classes and Methods, Encapsulation, Inheritance, Polymorphism, and Multithreaded Programming. The covered topics will be further explained in lab sessions using Java as the programming language. After successfully completing this course, students will have a good understanding of object oriented analysis and design process, and will be able to demonstrate object-oriented concepts in Java programming language.

2. Text Books

T1: The Complete Reference Java J2SE, 5th Edition, Herbert Schildt, Tata McGraw Hill Publishing, 2005

T2: Objects First with Java: A Practical Introduction Using BlueJ, David J. Barnes and Michael Kolling, Pearson Education, 5th Edition, 2012

3. Reference Books

R1: Head First Java, Bert Bates, O'Reilly, 2nd Edition, 2005

R2: Core Java Volume I - Fundamentals, Cay Horstmann, Pearson Education, 8th Edition 2008

4. Course Plan

No. of Lectures	Topic	Reference
1	Introduction and review	Class Notes + Course Handout
3	Introduction to Object Oriented Programming, Class definition, Object, Principles of OOP, Introduction to Java program syntax, Compiling & execution of Java program	T1 Ch2, T2 Ch1, Class Notes
2	Primitive data types, Type conversion and casting, Arrays, Operators, Control statements, Minor differences between C & Java	T1 Ch3, Ch4, Ch5 T2 Ch2
3	Class fundamentals, Objects, Constructors and Methods, Garbage collection	T1 Ch6, T2 Ch2
2	UML, Sequence, and State diagrams	R2 Ch4
4	Variables of class and null type, Method overloading, Object as parameters, Argument passing, Access Specifiers	T1 Ch7
4	Static variable and static methods, Accessors and Mutators, Introducing final: Final methods, Final classes, Introducing nested and inner class,	T1 Ch7

2	Revisiting arrays, Exploring string class, Variable length arguments	T1 Ch7
4	Inheritance, Keyword: super, Instance variable hiding, Multilevel hierarchy, Method overriding, Abstract classes, Final with inheritance.	T1 Ch8, T2 Ch8, Ch9
2	Packages, Importing packages, Creating packages, Access protection, Interfaces, Defining and implementing interfaces	T1 Ch9
4	Exception handling fundamentals, Exception types, Try and catch, Nested try statements, Java's built-in exceptions, Keywords: throw, throws, and finally	T1 Ch10, T2 Ch12
3	Thread model and basics, Creating new threads, The Main thread, Thread synchronization	T1 Ch11
4	File handling in Java, I/O Classes and Interfaces, Stream classes	T1 Ch19
2	Advanced Topics in OOP and Java	Class Notes

5. Evaluation Components

Component	Duration	Date	% Weightage	Remarks
Mid-term exam	1.5 hrs.	Oct 12, 9-10:30 AM	30%	Closed Book
Regular Labs*	2 hrs.	Tuesday, 3-5 PM	30%	Open Book
End-term exam	3 hrs.	Dec 8, 9-12PM	40%	Closed Book

* Best 10 out of 12 evaluated labs shall be considered for grading.

6. **Office Hours:** Wednesday, 2:00-3:00 PM. Students must do offline discussions only during office hours. Appointments via email or random requests for meeting won't be entertained.
7. **Notices:** All notices concerning this course will be displayed on the News forum of Photon server. Keep an eye on ID/ARC notices as well.
8. **Make-up Policy:** Cases approved by the Associate Dean of Instruction Division will be granted for a make-up exam. No make-up for the regular lab sessions. Zero marks will be awarded in case of absence or missing component (lab or exam).
9. **Evaluation Policy:** Any attempt of cheating or plagiarism in tests or labs will attract disciplinary committee action.

Instructor In-charge
Dr. Rahul Thakur