

Subject Code	Subject Name	Teaching Scheme			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Term Work and Pract.	Tutorial	Total
EXL 304	*Object Oriented Programming Methodology Laboratory	--	02+02**	--	--	02	--	02

Subject Code	Subject Name	Examination Scheme								
		Theory Marks					Term Work	Practical and Oral	Oral	Total
		Internal assessment			End Sem. Exam					
		Test 1	Test 2	Ave. Of Test 1 and Test 2						
EXL 304	*Object Oriented Programming Methodology Laboratory	--	--	--	--	25	50	-	75	

** 02 Hours be converted to theory hours for entire class theory discussion

Pre-requisites: Course in Structured Programming Approach/ Any Programming Language

Course Objectives:

1. To understand the concept of Object Oriented Programming
2. To help student to understand how to use a programming language such as JAVA to resolve problems.
3. To impart problems understanding, analyzing skills in order to formulate Algorithms.
4. To provide knowledge about JAVA fundamentals: data types, variables, keywords and control structures.
5. To understand methods, arrays, inheritance, Interface, package and multithreading.
6. To understand the concept of Applet.

Course Outcomes:

1. Students will be able to code a program using JAVA constructs.
2. Given an algorithm a student will be able to formulate a program that correctly implements the algorithm.
3. Students will be able to generate different patterns and flows using control structures.
4. Students will be able to make use of recursion in their programs.
5. Students will be able to use thread methods, thread exceptions and thread priority.
6. Students will implement method overloading in their code.
7. Students will be able to demonstrate reusability with the help of inheritance.
8. Students will be able to make more efficient programs.

Module No.	Unit No.	Topic	Hrs.
1		Fundamental concepts of object oriented programming	4
	1.1	Overview of Programming	
	1.2	Introduction to the principles of object-oriented programming : Classes, Objects, Messages, Abstraction, Encapsulation, Inheritance, Polymorphism, exception handling, and object-oriented containers	
	1.3	Differences and Similarity between C++ and JAVA	
2		Fundamental of Java Programming	4
	2.1	Features of Java	
	2.2	JDK Environment & tools	
	2.3	Structure of java program	
	2.4	Keywords , Data types, Variables, Operators, Expressions	
	2.5	Decision Making, Looping, Type Casting	
	2.6	Input output using scanner class	
3		Classes and Objects	6
	3.1	Creating Classes and objects	
	3.2	Memory allocation for objects	
	3.3	Passing parameters to Methods	
	3.4	Returning parameters	
	3.5	Method overloading	
	3.6	Constructor and finalize()	
	3.7	Arrays : Creating an array	
	3.8	Types of Array : One Dimensional arrays ,Two Dimensional array	
4		Inheritance , Interface and Package	6
	4.1	Types of Inheritance : Single ,Multilevel, Hierarchical	
	4.2	Method Overriding, Super keyword, Final Keyword, Abstract Class	
	4.3	Interface	
	4.4	Packages	
5		Multithreading	4
	5.1	Life cycle of thread	
	5.2	Methods	
	5.3	Priority in multithreading	
6		Applet	2
	6.1	Applet Life cycle	
	6.2	Creating applet	
	6.3	Applet tag	
		Total	26

Term Work:

At least **10** experiments covering entire syllabus should be set to have well predefined inference and conclusion. The experiments should be students' centric and attempt should be made to make experiments more meaningful, interesting and innovative. Term work assessment must be based on the **overall performance** of the student with **every experiment graded from time to time**. The grades should be converted into marks as per the **Credit and Grading System** manual and should be **added and averaged**. The grading and term work assessment should be done based on this scheme.

The final certification and acceptance of term work ensures satisfactory performance of laboratory work and minimum passing marks in term work. Practical and Oral exam will be based on the entire syllabus.