

## OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB

<b>Course Code:</b>	23CS3352/ 23IT3352/ 23AM3352/ 23DS3352	<b>Year:</b>	II	<b>Semester:</b>	I
<b>Course Category:</b>	PC	<b>Branch:</b>	CSE/AIML/ DS/IT	<b>Course Type:</b>	PRACTICAL
<b>Credits:</b>	1.5	<b>L – T – P</b>	0-0-3	<b>Prerequisites:</b>	C Programming language
<b>Continuous Evaluation:</b>	30	<b>Semester End Evaluation:</b>	70	<b>Total Marks:</b>	100

Course Outcomes		
Upon successful completion of the course, the student will be able to:		
<b>CO1</b>	Implement the programs by using basics and fundamental concepts of JAVA.	L3
<b>CO2</b>	Apply the knowledge of OOP principles to develop applications.	L3
<b>CO3</b>	Analyze the Java code to write bug free programs.	L4
<b>CO4</b>	Use Collections to solve different problems in JAVA.	L3

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3: Substantial, 2: Moderate, 1: Slight)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
<b>CO1</b>				3	3					2		3	3	3
<b>CO2</b>				3	3					2		3	3	3
<b>CO3</b>				3	3					2		3	3	3
<b>CO4</b>				3	3					2		3	3	3
<b>Avg.</b>				<b>3</b>	<b>3</b>					<b>2</b>		<b>3</b>	<b>3</b>	<b>3</b>

Syllabus		
S No.	CONTENTS	Mapped CO
1	<b>Exercise – 1:</b> a) Write a JAVA program to display default value of all primitive data type of JAVA b) Write a JAVA program that display the roots of a quadratic equation $ax^2+bx=0$ . Calculate the discriminate D and basing on value of D, describe the nature of root.	<b>CO1, CO2, CO3,CO4</b>
2	<b>Exercise - 2</b> a) Write a JAVA program to search for an element in a given list of elements using binary search mechanism. b) Write a JAVA program to sort for an element in a given list of elements using bubble sort	<b>CO1, CO2, CO3,CO4</b>

	c) Write a JAVA program using StringBuffer to delete, remove character.	
3	<b>Exercise - 3</b> a) Write a JAVA program to implement class mechanism. Create a class, methods and invoke them inside main method. b) Write a JAVA program implement method overloading. c) Write a JAVA program to implement constructor. d) Write a JAVA program to implement constructor overloading.	CO1, CO2, CO3,CO4
4	<b>Exercise - 4</b> a) Write a JAVA program to implement Single Inheritance b) Write a JAVA program to implement multi level Inheritance c) Write a JAVA program for abstract class to find areas of different shapes	CO1, CO2, CO3,CO4
5	<b>Exercise - 5</b> a) Write a JAVA program give example for “super” keyword. b) Write a JAVA program to implement Interface. What kind of Inheritance can be achieved? c) Write a JAVA program that implements Runtime polymorphism	CO1, CO2, CO3,CO4
6	<b>Exercise – 6</b> a) Write a JAVA program that describes exception handling mechanism b) Write a JAVA program Illustrating Multiple catch clauses c) Write a JAVA program for creation of JAVA Built-in Exceptions d) Write a JAVA program for creation of User Defined Exception	CO1, CO2, CO3,CO4
7	<b>Exercise – 7</b> a) Write a JAVA program that import and use the user defined packages. b) Write a JAVA program that import and use the user defined packages with jar file C) Write a Java Program to explore the following classes i) Formatter class ii) Random Class iii) Formatting for Date/Time in Java	CO1, CO2, CO3,CO4
8	<b>Exercise – 8</b> a) Write a JAVA program that creates threads by extending Thread class.First thread display “Good Morning “every 1 sec, the second thread displays “Hello “every 2 seconds and the third display “Welcome” every 3 seconds,(Repeat the same by implementing Runnable) illustrating b) Write a program <b>is Alive</b> and <b>join ()</b> c) Write a Program illustrating Daemon Threads.	CO1, CO2, CO3,CO4
9	<b>Exercise – 9</b> a) Implement the programs using ArrayList class b) Implement the programs using HashSet class c) Implement the programs using PriorityQueue class	CO1, CO2, CO3,CO4

## Learning Resources

### Text Books

- 1) JAVA one step ahead, Anitha Seth, B.L.Juneja, Oxford.
- 2) Joy with JAVA, Fundamentals of Object Oriented Programming, DebasisSamanta, MonalisaSarma, Cambridge, 2023.

### Reference Books

- 1) The complete Reference Java, 11<sup>th</sup>edition, Herbert Schildt,TMH
- 2) Introduction to Java programming, 7<sup>th</sup> Edition, Y Daniel Liang, Pearson

### E-Resources & other digital material

- 1) <https://nptel.ac.in/courses/106/105/106105191/>
- 2) [https://infyspringboard.onwingspan.com/web/en/app/toc/lex\\_auth\\_012880464547618816347\\_shared/overview](https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_012880464547618816347_shared/overview)