Course Code				**23CSMAP233**			
Title of the Course				**Object Oriented Programming using Java Lab**			
Offered to: (Programme/s)				**B. Sc. Hons (CS)**			
L	**0**	**T**	**0**	**P**	**2**	**C**	**1**
Year of Introduction:	**2024-25**			**Semester:**			**3**
Course Category:	**Major Practical**			**Course Relates to:**	**Global / National / Regional / Local**		
Year of Revision:				**Percentage:**			
Type of the Course:				**Skill Development / Employment**			
Crosscutting Issues of the Course :							
Pre-requisites, if any				**Knowledge in Java concepts and Syntax**			

Course Description:

The objective of course is to provide students with practical experience in Object Oriented Programming in Java.

Course Aims and Objectives:

S.NO	COURSE OBJECTIVES
1	Teach students to know the fundamental concepts in java
2	Provide comprehensive training in designing classes, objects and methods in java
3	Teach students to know inheritance, interfaces concepts in java
4	Train students to gain knowledge in multi threading , exception handling and packages
5	Train students to know Applets Creation,File Creation and JDBC Connectivity

Course Outcomes

At the end of the course, the student will be able to…

CO NO	COURSE OUTCOME	BTL	PO	PSO
CO1	Creating java programs that covers fundamental concepts	**K6**	**1,2,7**	**2**
CO2	Creating class, constructor, method overloading, method overriding in java.	**K6**	**1,2,7**	**2**
CO3	Creating different types of inheritance and interfaces in a Java program	**K6**	**1,2,7**	**2**
CO4	Creating Multithreading, different types of exception handling mechanisms, Creating and accessing packages in Java.	**K6**	**1,2,7**	**2**

CO5	Creating Applets,files and JDBC Connectivity in Java program.	**K6**	**1,2,7**	**2**

CO-PO MATRIX									
CO NO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PSO1**	**PSO2**
CO1	**3**	**3**					**2**		**2**
CO2	**2**	**3**					**2**		**3**
CO3	**2**	**3**					**2**		**2**
CO4	**2**	**3**					**2**		**3**
CO5	**2**	**3**					**2**		**3**

Use the codes 3, 2, 1 for High, Moderate and Low correlation Between CO-PO-PSO respectively

Course Structure

This lab list covers the key areas of Object Oriented Programming in Java Lab course, providing hands-on practice

Unit-1: Introduction to Java Programming

Lab 1

1. Design Java program to perform Type Casting in java..
2. Develop a Java program for sorting a given list of names in ascending order.

Unit-2: Control statements, Classes, Objects and Methods

Lab 2

4. Create a class Rectangle. The class has attributes length and width. It should have methods that calculate the perimeter and area of the rectangle. It should have read Attributes method to read length and width from user.

5. Construct a Java program that implements method overloading.

Unit-3: Inheritance, Arrays, Strings and Interfaces

Lab 3

6. Design a Java program to calculate multiplication of 2 matrices**.**

7. Construct Java programs to implement various types of inheritance

   i. Single ii. Multi-Level iii. Hierarchical iv. Hybrid

Lab 4

8. Write a java program to implement runtime polymorphism.
9. Develop java program to implement Abstract Classes and Final Keyword

Lab 5

10. Design a program for implementing interfaces.

11. Develop a program on Multiple Inheritance.

Unit-4: Multi-Threading, Exception Handling and Packages

Lab 6

12. Write a Java program which accepts withdraw amount from the user and throws an exception "In Sufficient Funds" when withdraw amount more than available amount.

13. Develop a Java program to create three threads and that displays "good morning", for every one second, "hello" for every 2 seconds and "welcome" for every 3 seconds by using extending Thread class.

Lab 7

14. Develop a Java program that creates three threads. First thread displays "OOPS", the second thread displays "Through" and the third thread Displays "JAVA" by using Runnable interface.
15. Construct program to create and Import Packages

Lab 8

16. Construct Java program to implement various types of Exception Handling Mechanisms

    iv. Arithmetic Exception
    v. Number Format Exception
    vi. ArrayIndexOutofBounds Exception

17. Design a program to demonstrate Catch Blocks

Unit-5: Applets, Streams, Files and Jdbc

Lab -9

18. Design a program to create an Applet
19. Create a program for writing and reading Files.

Lab -10

20. Design a program to insert records in DB table using JDBC.
21. Develop a program to Retrieve records from DB table using JDBC

References:

11. E.Balaguruswamy, Programming with JAVA, A primer, 3e, TATA McGraw-Hill Company.

Web Resources:

Prof.Debasis Samanta, Dept of Computer science, IIT Kharagpur."Basic Concepts of Java Programming", 2018.
https://www.youtube.com/watch?v=OjdT2l-EZJA&list=PLfn3cNtmZdPOe3R_wO_h540QNfMkCQ0ho&index=1

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23CSMAP233 :Object Oriented Programming using Java Lab

Offered to: B. Sc. HONS(CS) **Semester: III**
Max. Marks : 50 (CIA: 15 + SEE: 35) **Hrs/Week: 2**

Model Paper : Practicals

Time: 3 Hrs. **Max. Marks: 35**

Section – A

1. Experiment-1 15 M

2. Experiment-2 10 M

Section – B

Viva Voce 10 M

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