OBJECT ORIENTED PROGRAMMING LAB

II B. TECH- II SEMESTER

Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P	C	CIE	SEE	Total
A4CS11	PCC	-	-	3	1.5	30	70	100

COURSE OBJECTIVES:

The course should enable the students to:

1. To teach fundamentals of object oriented programming in Java. Understand various concepts of JAVA.
2. To familiarize Java environment to create, debug and run simple Java programs.
3. To demonstrate java compiler and eclipse platform and learn how to use Net Beans IDE to create Java Application.
4. To explain event handling with java programming.

COURSE OUTCOMES:

The course should enable the students to:

1. Implement Object oriented features using Java.
2. Apply the concept of polymorphism and inheritance.
3. Implement exception handling.
4. Develop network and window application using awt and swings.

LIST OF EXPERIMENTS

WEEK-1 CONDITIONAL STATEMENTS AND FUNCTIONS

1. Write a Java program that prints all real solutions to the quadratic equation ax2 + bx + c = 0. Read in a, b, c and use the quadratic formula. If the discriminate b2-4ac is negative, display a message stating that there are no real solutions.
2. The Fibonacci sequence is defined by the following rule: The first two values in the sequence are 1 and 1. Every subsequent value is the sum of the two values preceding it. Write a Java program that uses both recursive and non recursive functions to print the nth value in the Fibonacci sequence.

WEEK-2 BASIC INPUT OUTPUT AND ARRAYS

1. Write a Java program that prompts the user for an integer and then prints out all prime numbers up to that integer. (use Scanner class to read input)
2. Write a Java program to multiply two given matrices.
3. Write a Java Program that reads a line of integers, and then displays each integer, and the sum of all the integers (Use String Tokenizer class of java.util)

WEEK-3 CONTROL STATEMENTS

1. Write a Java program that checks whether a given string is a palindrome or not. Ex: MADAM is a palindrome.
2. Write a Java program for sorting list of names. Read input from command line.
3. Write a Java program to make frequency count of words in a given text.

WEEK-4 CLASSES AND CONSTRUCTORS

1. Write a Java program to create a Student class with following fields
i. Hall ticket number
ii. Student Name
iii. Department
Create 'n' number of Student objects where 'n' value is passed as input to constructor.
2. Write a Java program to demonstrate String comparison using == and equals method.

WEEK-5	INHERITANCE

1. Write a java program to create an abstract class named Shape that contains an empty method named number Of Sides ( ).Provide three classes named Trapezoid, Triangle and Hexagon such that each one of the classes extends the class Shape. Each one of the classes contains only the method number Of Sides ( ) that shows the number of sides in the given geometrical figures.
2. Suppose that a table named Table.txt is stored in a text file. The first line in the file is the header, and the remaining lines correspond to rows in the table. The elements are separated by commas. Write a java program to display the table using JTable component.
3. Write a java program that illustrates the following
   - *Creation of simple package.*
   - *Accessing a package.*
   - *Implementing interfaces.*

Week-6	FILES AND EXCEPTION HANDLING

1. Write a java program to implement the following
   1. Handling predefined exceptions 2. Handling user defined exceptions
2. Write a Java program to read copy content of one file to other by handling all file related exceptions.

WEEK-7	INPUT OUTPUT STREAMS

a. Write a Java program that reads a file name from the user, and then displays information about whether the file exists, whether the file is readable, whether the file is writable, the type of file and the length of the file in bytes.
b. Write a Java program that reads a file and displays the file on the screen, with a line number before each line.
c. Write a Java program that displays the number of characters, lines and words in a text file.

WEEK-8	THREADS

1. Write a Java program that creates three threads. First thread displays —Good Morningll every one second, the second thread displays —Helloll every two seconds and the third thread displays Welcome every three seconds.
2. Write a Java program that correctly implements producer consumer problem using the concept of inter thread communication.

WEEK-9	AWT CONTROLS

1. Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, -,*, % operations. Add a text field to display the result

Week-10	EVENT HANDLING

1. Write a Java program for handling mouse events.
2. Write a Java program for handling key events using Adapter classes

WEEK-11	APPLETS

a. Write a java program that simulates a traffic light. The program lets the user select one of three lights: red, yellow, or green. When a radio button is selected, the light is turned on, and only one light can be on at a time No light is on when the program starts.
b. Write a Java program that allows the user to draw lines, rectangles and ovals.

Week-12	SWINGS AND APPLETS

1. Develop simple calculator using Swings.
2. Develop an applet that displays a simple message in center of the screen

REFERENCE BOOKS:

1. Herbert schildt (2010), The complete reference, 7th edition, Tata Mc graw Hill, New Delhi
2. Head First Java, O'rielly publications.
3. T. Budd (2009), An Introduction to Object Oriented Programming, 3rd edition, Pearson Education, India.
4. J. Nino, F. A. Hosch (2002), An Introduction to programming and OO design using Java, John Wiley & sons, New Jersey.
5. Y. Daniel Liang (2010), Introduction to Java programming, 7th edition, Pearson education, India.

WEB REFERENCES:

1. https://www.geeksforgeeks.org/java/
2. https://stackify.com/oops-concepts-in-java/
3. https://www.tutorialspoint.com/java/java_overview.htm
4. https://www.javatpoint.com/java-oops-concepts