Faculty of Computer Science & Applications
Master of Computer Application
(W. E. F.: 2023-24)

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Name of Faculty	:	**Faculty of Computer Science & Applications**
Name of Program	:	Master of Computer Application (MCA)
Course Code	:	1MCA02
Course Title	:	Object Oriented Programming with JAVA
Type of Course	:	Professional Couse
Year of Introduction	:	2023-24

Prerequisite	:	Any Programming Language
Course Objective	:	This Course will enhance the students' ability to program in JAVA in Object oriented paradigm.
Course Outcomes	:	At the end of this course, students will be able to:
	CO 1	Understand JAVA as Object Oriented Programming Language, and programming elements/features in JAVA.
	CO 2	Learn Programming with JAVA Keywords
	CO 3	Learn use of Different Built-in Class, Packages, and applets of JAVA
	CO 4	Write programs of Interfaces, using Exception Handling and Inheritance

Teaching and Examination Scheme

Teaching Scheme (Contact Hours)			Credits	Examination Marks				
				Theory Marks		Practical Marks		Total Marks
L	T	P	C	SEE	CIA	SEE	CIA	
2	0	4	4	70	30	30	20	150

*Legends: **L**-Lecture; **T**–Tutorial/Teacher Guided Theory Practice; **P**–Practical, **C** – Credit, **SEE** – Semester End Examination, **CIA** - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.))*

Course Content

Unit No,	Topics	Teaching Hrs.	Weightage	Mapping with CO
1	**Introduction to Java:** Java Introduction, Using data within java programs, Data Types in Java, Understanding numeric, type conversion, Operators in Java	6	20%	CO 1, CO 2
2	**Selections, Mathematical functions and loops:** if and if…..else , Nesting if… else, Using logical AND and OR operators, switch statement, Using the conditional AND not operators while loop, Using the arithmetic operators, for loop, do…. while loop, Nested loops.	6	20%	CO 1
3	**Characters, String class and String Buffered class:** Manipulating characters class,	6	15%	CO 3

	Manipulating String class: Declaring a String Object, Comparing String values, **Manipulating StringBuffer class:** **Arrays:**			
4	**Exception Handling and Inheritance:** Excepting Handing, Inheritance, Method which cannot be override.	6	25%	CO4
5	**Interfaces, Abstract Classes, Packages and Applets:** Interfaces and Abstract Classes, Packages, Applets	6	20%	CO 3

Suggested Distribution of Theory Marks Using Bloom's Taxonomy						
Level	Remembrance	Understanding	Application	Analyse	Evaluate	Create
Weightage	**30%**	**30%**	**40%**	**-**	**-**	**-**

NOTE: This specification table shall be treated as a general guideline for the students and the teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Suggested List of Experiments/Tutorials

Sr. No.	**Name of Experiment/Tutorials**	**Teaching Hours**
1.	Write a program to calculate the hypotenuse of right-angled triangle when other sides of the triangle are given. (Hypotenuse = square root (x*x + Y *Y))	02
2.	Write a program to evaluate simple interest of a given principle, rate and time.	02
3.	Write a program using the arithmetic operators to perform algebraic operations on two numbers. (Algebraic operation is +, - , *, /, %)	02
4.	Write a program to calculate the area of square and rectangle by overloading the area method.	02
5.	Write a java program to display powers of 2 i.e. 2,4,8,16etc up to 1024 using bitwise operators.	02
6.	Write a java program to scan three integer values from the user and display the minimum using conditional operator.	01
7.	Write a program to convert inches to centimetres.	01
8.	Write a program to print even number up to 10 using while loop.	01
9.	Write a program to check whether the given number is even or odd.	01
10.	Write a program to create an array to store five integer values. Also initialize the array with five numbers and display the array Elements in reverse order.	02
11.	Write a program to sort a list of students based on the marks.	01
12.	Write a java program that accepts a string from users and display each character on separate line in reverse order.	02
13.	Write a java program that accepts a string from users and display each character on separate line in reverse order.	02
14.	Write a program to display the sum of digits of given numbers with exception handling.	02

15.	Write a Java program to input n integer numbers and display lowest and second lowest number. Also handle the different exceptions possible to be thrown during execution.	02
16.	Write a program to calculate the area by using an interface	01
17.	Write a program to create interface named shape which has one method Area( ). This is inherited into the class circle and rectangle.	02
18.	Write a program to create abstract class shape which has one method Area( ). This is inherited into the class circle and rectangle.	02
19.	Write an applet that take three numbers as parameters and displays their sum and average.	02
20.	Create an employee class, which contains fields such as id, name, and designation. And create a subclass increment, which contains a field salary and function to increment salary by 20%. Write a program for inheriting this relation.	02

Major Equipment/ Instruments and Software Required

Sr. No.	Name of Major Equipment/ Instruments and Software
1	Ellipse, Note pad, JDK

Suggested Learning Websites

Sr. No.	Name of Website
1	www.w3schools.com/java
2	www.javatpoint.com/java-tutorial

Reference Books

Sr. No.	Name of Reference Books
1	Java: The Complete Reference, Eleventh Edition, 11th Edition, Herbert Schildt, McGraw-Hill,2018
2	JAVA for Beginners by Joyce Farrell, Cengage Learning
3	Object Oriented Programming in java by Dr. G. T. Thampi, Dreamtech
4	JAVA Programming by Hari Mohan Pandey, Pearson