



Faculty of: **Computer Science**
 Course: **Master of Computer Applications**
 Semester: **II**
 Subject Code: **5CS02CJP1**
 Subject Name: **Java Programming**

Sr. No	Subject Code	Subject Name	Teaching hours/ Week			Credit hours	Credit Points	Evaluation Scheme/ Semester									
			Th	Tu	Pr			Theory				Practical				Total	
								Internal Assessment		End Semester Exams		Internal Assessment		End Semester Exams			
								Marks	Duration	Marks	Duration	Marks	Duration	Marks	Duration		
1	5CS02CJP1	Java Programming	4	--	4	8	6	30	1½	70	2½	--	--	50	1½	150	

Objectives:-

- To develop proficiency in creating console based and GUI based applications using the Java Programming Language.
- To be able to understand the concepts of Object Oriented Programming Language and easily use Java.
- To get a good understanding of developing multi-threaded applications using the Java Programming Language.
- To be able to develop Applets for embedding in a web page.

Prerequisite:-

- Knowledge of Algorithm and Flow chart to implement the programming logic.

Course Outline:-

Sr. No.	Course Content	Hours
1	Introduction Introduction – what is java, importance of java, java implementation application of java, java buzzwords (simple, secure, portable, object-oriented, robust multithreaded, architecture – natural, interpreted, high performance, distributed dynamic) object oriented programming three OOP principals (encapsulation, inheritance, polymorph) sample Program & compilation, block of code, lexical issues (White space, identifiers, literals, comments, separators, keyword),	6

2	Data type, operators, control structures variables, constants, declaration, literals, scope of variable, type casting arithmetic operators, relational operators, logical operators, assignment operators, increment –decrement operators, conditional operators, bit wise operators, dot operators, if-else, statement, loops (while, do-while, for break, go to, continue return) switch statement, operator arrays –declaration, creation, initialization, length ,two-dimensional arrays string-string arrays,	4
3	Introduction of classes, objects and methods class, object & method, defining class, adding variables, adding methods, creating objects, constructors THIS key word, garbage collection, finalize() method ,accessing class members, method overloading, methods overloading static members, nesting of methods, vectors and wrapper classes, final variables and methods, final classes, finalize methods, abstract methods and classes, visibility control – public access, friendly access, protected access, private protected access, , object as parameters, argument passing, returning objects, recursion, access control, static, final, string class , string buffer class, Command-Line arguments	10
4	Inheritance, Packages and Interfaces Inheritance, types of Inheritance, Member access, super class creating multilevel Hierarchy ,Method overloading & overriding, ,Defining packages, understanding CLASSPATH ,Access protection ,importing packages, defining interfaces	6
5	Managing Errors & Exceptions ,java.util Package exception types, uncaught exceptions ,multiple catch clauses ,nested try statements ,throw, throws, finally, java’s built-in exceptions, creating your own exception ,classes from java.util package(Date, Time Zone)	8
6	I/O files in java, Multithreaded programming Concept of Streams, difference between CharacterStreams and ByteStreams characterstreams(reader,writer,bufferedReader,inputstreamreader,filereader)Bytestream(inputstream,fileinputstream,bufferedinputstream,datainputstream, fileoutputstream, dataoutputstream, printstream)Other classes (random access file , streamtokenizer)creating threads, run()method, new thread, thread class, stopping &blocking threads, life cycle of thread- newborn, runnable, running, blocked, dead, waiting sleeping, suspended, blocked, using thread methods, thread exceptions, thread priority, implementing the Runnable interface	6
7	Applet, Event Handling Introduction to applet, applet lifecycle ,applet class,applet context class, passing parameters to applet,use of java .awt graphics class and its various methods in an applet,Event delegation model or event class hierarchy,all classes and interfaces of event delegation model, programmers related to event handling covering all types of events	4

8	Graphical user interface Layout managers (flowlayout, borderlayout, cardlayout gridbaglayout, gridlayout) AWT controls (labels, buttons,checkboxes, checkboxgroup, choices, textfields, textareas, lists, panels, windows, frames, menus, menubars)	4
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PRACTICAL LIST:

1.	Write program for simple print “Wel come” in screen
	Write program for find Odd and Even number
	Program- Write a java program to calculate Factorial of given no through command line argument
2.	Write a java program to calculate area of circle ,use command line argument to accept the value of radius
	Program that accepts two Double numbers as its command line argument Multiply these together and display the Product.
3.	Program that defines a circle class with two constructors. The first from accepts a double value that represents the radius of circle. This constructor assumes that the circle is centered at the origin. The second form accepts the double value & the first two arguments define the co-ordinate of the center and the third arguments define the radius.
	program to sort the element of an array in ascending order using command line argument
4.	Write Program to find out Prime number using Command line argument with n number
	/* Display the following outputs 1 1 2 2 1 2 3 3 3 1 2 3 4 4 4 4 1 2 3 4
5.	Write a java program to find power of given number use command line argument to accept base and power number
	Write a program for print the series like 1 + 1/2 + 1/3....
	Write a program for print the Fibonacci series
6.	Program to create a STRINGBUFFER object and illustrate how to insert character as its beginning
	Program to create an application which will read string from command line argument and will return into alphabetical order. EX. string:- AMPICS O/P:- ACIMPS
7.	Write a java program to find out prime numbers with command line argument
	Program that searches through its command line argument if arguments found that does not begin with an Upper case letter. Display an error message and terminate
8.	Create package with sum of three class
	Create multiple threads.
	Program to print words, lines, caharacters in a file
9.	Program to print information about a file.
	Write a java program to read a text and count the occurrences of word
10	Program for Applet Life Cycle with appropriate Message
	Design Indian Flag.
	Programs create an applet which has two buttons red and green. create a event when red button is

	pressed the background of the applet will be red and also green respectively
11.	Program to create a circle on the center of the applet and fill color with magenta
12.	Write a Applet program to show NAME and PASSWORD label and textbox resp. to enter text in it. Write an applet that accepts multiple parameters that identifying a set of images select one of these images at random and display it
13.	Write a Java program that allows the user to draw lines, rectangles and Ovals.
14.	Write a java Applet to display nested layout Write a java applet program of scrolling list with choice & inform user to its select it
15.	Program To Create a File Menu
16.	Demonstrate the mouse event handlers.
17.	Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the + - X % operations. Add a text field to display the result.
18.	Write an applet that computes the payment of a loan based on the amount of the loan, the interest rate and the number of months. It takes one parameter from the browser: Monthly rate; if true, the interest rate is per month; Other wise the interest rate is annual.

Learning Outcomes:

- Ability to create appropriate classes using the Java Programming Language to solve a problem using Object Oriented Approach.
- Ability to write console based and GUI based applications in the Java Programming Language.
- Ability to develop to multi-threaded applications using the Java Programming Language.
- Ability to create Applets using the Java Programming Language.

Teaching & Learning Methodology:

- Using Whiteboard & Projector or OHP

Books Recommended:

1. Programming with Java a Primer 3e, **Balagurusamy**, McGraw Hill
2. Java: the Completed Reference , 7th Edition by **Schildt, Herbert**, TMH publication
3. The class of Java, **Pravin Jain**, Pearson Education.
4. The Java Programming Language, **Ken Arnold, James Gosling, David Holmes** , Addison-Wesley Pearson Education (4th Edition – 2005).
5. Object-Oriented Programming with Java: Essentials & Applications, **Raj Kumar Buyya, S. Thamarai Selvi, & Xing Chen Chu**, Tata McGraw Hill

NPTEL Resources:

1. Programming in Java, IIT Kharagpur Prof. Debasis Samanta
<https://nptel.ac.in/courses/106105191>