SILVER OAK UNIVERSITY

College of Computer Application

Integrated M.Sc(IT)/BCA
Subject Name: Java Programming
Subject Code:1040233205
Semester: IV

Prerequisite: About java programming

Objective:

Students should create logic and implement using java language for problem solving.
How to use java programming for developing applications.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Evaluation Scheme				Total Marks
L	T	P	C	Internal		External		
				Th	Pr	Th	Pr	
0	4	2	5	40	50	60	---	150

Content:

Unit No.	Course Contents	Teaching Hours	Weightage %
1.	**Introduction to Java** ● What is JAVA? ● Concept of class ● Introduction of Object Oriented Programming concept ● Features of JAVA ● Basic concepts of OOPs: ➢ Object,Class,Inheritance,Polymorphism,Abstraction,Encapsulation ● Introduction to class diagram(UML diagram) ● Structure of JAVA Program ● Creating a JAVA source file ● Compiling of JAVA source file and Compilation process ● Run the application using JAVA interpreter. **Using Data with JAVA programs** ● Constants,Literals,Variables,Keywords,Identifier ● Data types(Integers,Floating Point, Character, Boolean) ● Operators(Arithmetic, Relational, Boolean, Increment and decrement, conditional, Bitwise)	10	20
2	**Conditional statements ,Array and string**	10	20

	Control Statements ● Flow Control Statements(If and if …. else , Nesting IF … else , Switch case statement) ● Looping Statement(While loop, for loop, do..while loop, Nested Loop) **Array and String in JAVA** ● Declaring and initializing an array ● Using two dimensional and multidimensional arrays ● Passing arrays to methods , methods of arrays fill(), sort(), equal(),binary search() ● Initialization of string ● Manipulating string class(isUppercase(), toUppercase(),isLowercase(), toLowercase()) String methods		
3	**Methods , Classes and Objects** ● Class variables and class methods ● Classification of variable declared in a class(local variable, Instance variable, Class variable) ● Method Overloading ● Constructors ● Visibility modifiers for Access control(Public, Private , Protected) ● Passing object as a parameter in a method ● Inheritance ● Super class ● Final method, Static method ● Abstract class, Aggregation and composition,messaging **Multithreaded Programming and Package, Interface** ● Use of Multithread programming, ● Thread class and Runnable interface , ● Thread priority, Thread synchronization, Thread communication, Deadlock ● Use of Package, CLASSPATH, Import statement, Static import, Access control ● Creation and Implementation of an interface, ● Interface reference, instance of operator, Interface inheritance, ● Dynamic method dispatch , ● Comparison between Abstract Class and interface	15	30
4	**Exception Handling** ● Learning about exceptions ● Limitations of traditional error handling	10	20

	• Types of JAVA Exceptions(Checked exception, Unchecked exception, error) • Java Try and catch block • Java Multiple catch Block • Java Finally Block • Java Throw block • Java throws block • Java Custom exceptions • Advantages of Exception Handling		
5	**Applet** • Introduction o Lifecycle of an Applet • Comparing Applets and Application • Creating Applets • Parameters passing in apple • Applets Graphics • Line, Rectangles, Ovals, Arcs, Polygons, Polyline methods	5	10

Course Outcome:

Sr. No.	CO statement	Unit No
CO-1	Use the syntax and semantics of java programming language and basic concepts of OOP.	1,2
CO-2	Develop reusable programs using the concepts of inheritance, polymorphism, interfaces and packages.	3
CO-3	Apply the concepts of Multithreading and Exception handling to develop efficient and error free codes.	3,4
CO-4	Design event driven GUI and web related applications which mimic the real word scenarios.	5

Teaching & Learning Methodology:-

- The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures.
- Lectures with live practical example using Projector and Computer
- Experiments shall be performed in the laboratory related to course contents

Major Equipment:

1. Computer System

2. Projector

List of Experiments/Tutorials:

Sr. No	Practicals
1	Write a java program to evaluate simple Interest of a given Principal, rate, and time
2	Write a program using the arithmetic operators to perform algebraic operations on two numbers(+,-,*,/,%)
3	Write a program to calculate the area of square and rectangle.
4	Write a program to input the 3 values from the user and display minimum using condition operators.
5	Write a program to convert inches into centimeters.
6	Write a program to print even numbers up to 10 using a while loop.
7	Write a program to check whether the given number is even or odd.
8	Write a Program to print Prime numbers between 1 to 100.
9	Write a JAVA program to print the elements of an array in reverse order.
10	write a JAVA program to sort the elements of an array in ascending order.
11	Write java Program to find reverse of string
12	Write a JAVA program to count the total number of characters in a string.
13	Consider an employee class, which contains fields such as name and designation. And a subclass, which contains a field salary. Write a program for inheriting this relation.
14	Write a java program that accepts marks of 5 subjects from display the average. If any value is not between 0 and 100 then throw custom exception RangeException and handle it.
15	Write a program to calculate the area by using an interface.
16	Write a Java applet that draws a circle centered in the center of the applet and filled with random color. Radius of the circle should be passed as a parameter.
17	Write a Java applet that draws a circle divided in 6 equal parts

18	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.
19	Write an applet that take three numbers as parameters and displays their sum and average.
20	Write a class with a method to find the area of a rectangle. Create a subclass to find the volume of a rectangular shaped box.

Books Recommended:-

1. **JAVA Programming , Publication: Pearson By HAri Mohan Pandey**
2. **JAVA - Hebert Schildt**
3. **Programming with JAVA- E balagurusamy- McGraw Hill**

List of Open Source Software/learning website:

www. javapoint.com