SILVER OAK UNIVERSITY

College of Technology (01)

Bachelor of Technology in Computer Engineering – Cloud Computing

Subject Name: Object Oriented Programming with Java

Subject Code: 1010053261

Semester: 4th

Prerequisite: Programming Fundamentals

Objective:

- This subject will help to improve the analytical skills of object-oriented programming
- Overall development of problem solving and critical analysis Formal introduction to Java programming language

Teaching and Examination Scheme:

Teaching Scheme			Credits	Evaluation Scheme				Total Marks
L	T	P	C	Internal		External		
				Th	Pr	Th	Pr	
4	0	2	5	30	20	70	30	150

Content:

Unit No.	Course Contents	Teaching Hours	Weightage %
1	**Introduction to Java :** Basics of Java programming, Data types, Variables, Operators, Control structures including selection, Looping, Java methods, Overloading, Math class, Arrays in java.	7	10
2	**Objects and Classes :** Basics of objects and classes in java, Constructors, Finalizer, Visibility modifiers, Methods and objects, Inbuilt classes like String, Character, StringBuffer, File, this reference.	8	20
3	**Inheritance and Polymorphism :** Inheritance in java, Super and sub class, Overriding, Object class, Polymorphism, Dynamic binding, Generic programming, Casting objects, Instance of operator, Abstract class, Interface in java, Package in java, UTIL package.	8	20

4	**Package**: Use of Package, CLASSPATH, Import statement, Static import, Access control	2	5
5	**Exception Handling:** Exception and Error, Use of try, catch, throw, throws and finally, Built in Exception, Custom exception, Throwable Class	5	15
6	**Multithreaded Programming:** Use of Multithread programming, Thread class and Runnable interface , Thread priority, Thread synchronization, Thread communication, Deadlock	5	10
7	**IO Programming:** Introduction to Stream, Byte Stream, Character stream, Readers and Writers, File Class, File InputStream, File Output Stream, InputStreamReader, OutputStreamWriter, FileReader, FileWriter, Buffered Reader	5	15
8	**Networking with java.net:** InetAddress class,Socket class, DatagramSocket class, DatagramPacket class	3	5

Course Outcome:

Sr. No.	CO statement	Unit No
CO-1	Understand object-oriented programming concepts and implement in java.	1, 2
CO-2	Comprehend building blocks of OOPs language, inheritance, package and interfaces.	3,4
CO-3	Identify exception handling methods	5
CO-4	Implement multithreading in object-oriented programs.	6
CO-5	Apply the knowledge of java in Networking Concepts.	7.8

Teaching & Learning Methodology:

- The course includes a laboratory, where students have an opportunity to learn about the open source operating system and implement the concepts being taught in lectures.
- Lectures with live practical examples using Projector and Computer.
- Experiments shall be performed in the laboratory related to course contents

List of Experiments/Tutorials:

1 Program to define a structure of a basic JAVA program

2 Program to define the data types, variable, operators, arrays and control structures.

3 Program to define class and constructors. Demonstrate constructors.

4 Program to define class, methods and objects. Demonstrate method overloading.
5 Program to define inheritance and show method overriding.
6 Program to demonstrate Packages.
7 Program to demonstrate Exception Handling.
8 Program to demonstrate Multithreading.
9 Program to demonstrate I/O operations.
10 Program to demonstrate Network Programming.
11 Program to demonstrate Layout managers.

Books Recommended:-

1. Introduction to Java Programming (Comprehensive Version), Daniel Liang, Seventh Edition, Pearson.
2. Programming in Java, Sachin Malhotra & Saurabh Chaudhary, Oxford University Press.
3. Murach's Beginning Java 2, Doug Lowe, Joel Murach and Andrea Steelman, SPD.
4. Core Java Volume-I Fundamentals, Eight Edition, Horstmann & Cornell, Pearson Education.
5. The Complete Reference, Java 2 (Fourth Edition), Herbert Schild, TMH.
6. Java Programming, D. S. Malik, Cengage Learning.

List of Open Source Software/learning website:

https://www.redhat.com/en/topics/linux

https://www.geeksforgeeks.org/linux-commands/