School of Computer Engineering

Kalinga Institute of Industrial Technology (KIIT)

Deemed to be University

Bhubaneswar-751024

LESSON PLAN

Program	:	B.Tech.(Computer Science)/ B.Tech. (IT.)/ B.Tech(CSCE)/ B.Tech(CSSE)
Academic Session	:	2023-2024 (Spring Semester)
Semester	:	4th
Subject Code	:	CS20004
Subject	:	**Object Oriented Programming using Java**
Credit	:	3 (L-T-P:2-1-0)
Prerequisite(s)	:	Programming in C
Faculty	:	Mr. Sourav Kumar Giri

Course Objectives: - This course provides a basic overview of object oriented programming concepts. Also, it develops programming skills of students in Java and enables students to design object-oriented applications with Java.

Course Outcomes: - At the end of the course the students will be able to:

CO1-Examine the basic concepts of Object Oriented Programming
CO2- Perceive syntax and semantics of Java Programming language
CO3- Design Java application programs using basic concepts of OOP principles, abstract classes, interfaces and packages
CO4 - Develop robust and multitasking Java programs using exception handling and multithreading techniques
CO5-Design java programs using string classes and I/O operations.
CO6-Design GUI applications using Swing and interactive application using event handling and java database connectivity.

Lesson Plan

Total Lectures ≈ 40

Pre mid-semester≈ 20

Post mid-semester≈ 20

Module No. &Name	Topics/Coverage	No. Of Lectures	Lecture Serial No.
1. Object Oriented Paradigm	● Programming paradigm - Procedure oriented, Object oriented ● OOP concept - Class,Object ● Encapsulation and Abstraction, Inheritance, Polymorphism	3	1-3
2. Java basics	● Introductions to Java and java Applications ● Java Architecture: JDK, JRE, JVM, Byte code ● Characteristics of java ● A simple java program, compiling and executing ● Data types, Operators, Expressions, scope of the variable, type conversion and casting ● Branch Control Statements, Selection statements, Iteration statements, Jump Statements ● Examples	3	4-6
3. Class & object	● Introduction to class, class members, Creating instances of class ● Staticvariable, object, block, methods and final ● Array :1D & 2D ● Command line arguments ● Input Stream Reader, Scanner class	4	7-10

	• Constructors • Overloading: method, constructor		
4. Inheritance	• Inheritance basics, Use of Super Keyword • Different types of Inheritance, Single, and Multilevel, Hierarchal • Method overriding • Runtime Polymorphism: Dynamic method dispatch • Abstract class	4	11-14
5. Package and interface	• Package, access control mechanism • Interface • Dynamic Method lookup • Inner Class	3	16-17
6. Exception handling	• Java Exception handling mechanism • Exception types, try, catch, throw, throws and finally. • Built in Exceptions: Checked and Unchecked Exceptions • User defined exception	3	18-20
	MID SEMESTER		
7. String handling	• String, String constructor • String operations:String extractions,string comparison,Searching strings, modifying a String, toString() and valueOf() methods • String Buffer, String Buffer Constructor, String Buffer operations & methods ● StringBuilder class	2	21-22

8. Input/Output Stream	● I/O basics ● Stream: Byte stream, Character Stream, ● Reading console Input: InputStreamReader, BufferedReader, DataInputStream ● Writing console output: OutputStreamReader, BufferedWriter, DataOutputStream ● Reading and writing files: FileInputStream, FileOutputStream, FileReader, FileWriter, PrintStream, PrintWriter, RandomAccessFile	4	23-26
9. GUI Programming & Event handling	● Introduction to Swing, Swing controls ● Event handling: Delegation event model, event classes, sources, listeners, ActionEvent ● Adapter class	5	27-31
10. Multithreading	● Basic thread concept, Life cycle of thread, Thread Priorities, Thread Class and Runnable Interface ● Synchronization ● Inter Thread Communication	5	32-36
11. Java Database Connectivity	● Type of Drivers ● JDBC Architecture ● JDBC classes and interfaces ● Basic steps in Developing JDBC Applications ● Creating Table with JDBC ● Statement and PreparedStatement object ● Working with DataBase Data- ResultSet	4	37-40
	END SEMESTER		

Text Books:

1. Java - The Complete Reference, Herbert Schildt, 10th edition, McGraw Hill Education.

Reference Books:

2. Java Programming – for Core and Advanced Users, Sagayaraj, Denis, Karthik and Gajalakshmi, Universities Press.
3. Java - One Step Ahead, by Anita Seth and B L Juneja, published by Oxford University Press.

Evaluation Scheme:

Mid-semester	: 20 Marks
Activities/Quiz /Assignment	: 30 Marks
End-semester	: 50 Marks

Tentative Activity Calendar:

Task	Marks
Before Mid-semester	
Assignment/Class Test	5
Quiz	5
Coding Assignment	5
After Mid-semester	
Assignment/Class Test	5
Quiz	5

Coding Assignment/Mini Project	5