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(CSCE)
Academic Session   : 2024-2025 (Spring Semester)
Semester   : 4th
Subject Code   : CS20004
Subject   : Object Oriented Programming using Java
Credit   : 3 (L-T-P:3-0-0)
Prerequisite(s) : Programming in C
Faculty   : Dr. Rinku Datta Rakshit
Contact No. - 8918612472

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	2	1-2

		• OOP concept - Class,Object • Encapsulation and Abstraction, Inheritance, Polymorphism		
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		3-5
3.	Class & object	• Introduction to class, class members, Creating instances of class • Static variable, object, block, methods and final • Array :1D & 2D • Command line arguments, Scanner class • Constructors • Overloading: method, constructor	4	6-9
4.	Inheritance	• Inheritance basics, Use of Super Keyword • Different types of Inheritance, Single, and Multilevel, Hierarchical • Method overriding • Runtime Polymorphism: Dynamic method dispatch • Abstract class	4	10-13
5.	Interface and Package	• Interface • Package, access control mechanism • Dynamic Method lookup • Nested Class	3	14-16
6.	Exception handling	• Java Exception handling mechanism • Exception types, try, catch, throw, throws and finally. • Built in Exceptions: Checked and	4	17-20

		Unchecked Exceptions		
		● User defined exception		
		MID SEMESTER		
7.	String handling	● String, String constructor	2	21-22
		● String operations:String extractions,string comparison,Searching strings, modifying a String, toString() and valueOf() methods		
		● String Buffer, String Buffer Constructor, String Buffer operations & methods		
8.	Input/Output Stream	● I/O basics	4	23-26
		● 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		
9.	Multithreading	● Basic thread concept, Life cycle of thread, Thread Priorities, Thread Class and Runnable Interface	5	27-31
		● Synchronization		
		● Inter Thread Communication		
10.	Java Database Connectivity	● Type of Drivers	4	32-35
		● 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		
11.	GUI Programming & Event handling	● Introduction to Swing, Swing controls	5	36-40
		● Event handling: Delegation event model, event classes, sources, listeners, ActionEvent		
		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