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 : 3rd
Subject Code : CS20004
Subject : Object Oriented Programming using Java
Credit : 3 (L-T-P:2-1-0)
Prerequisite(s): Programming in C
Faculty : Dr. Partha Pratim Sarangi

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 ≈ 36

Pre mid-semester ≈ 18

Post mid-semester ≈ 18

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 • Constructors	4	7-10

	• 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	15-16
	MID SEMESTER		
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	17-19
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	20-21
8. Input/Output	• I/O basics	4	22-25

Stream	• 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		
9. GUI Programming & Event handling	• Introduction to Swing, Swing controls • Event handling: Delegation event model, event classes, sources, listeners, ActionEvent • Adapter class	5	26-30
10. Multithreading	• Basic thread concept, Life cycle of thread, Thread Priorities, Thread Class and Runnable Interface • Synchronization • Inter Thread Communication	5	31-33
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	34-36
	END SEMESTER		

Note: 1. **Topics highlighted in pink will not be included in the End Semester Examination.**
2. **Pink-highlighted topics are optional; as per convenience, faculties may give additional effort to cover these topics.**

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