

Fr. Conceicao Rodrigues College Of Engineering
Department of Artificial Intelligence and Data Science Engineering

S.E. (AI DS) (semester VI) (2022-2023)
Course Outcomes & Assessment Plan

Subject: Object Oriented Programs with Java (OOP with Java-CSL304)

Credits-2

Prerequisite: Structured Programming Approach

Course Objectives:

1. To learn the basic concepts of Object Oriented Programming.
2. To study JAVA programming language.
3. To study various concepts of JAVA programming like multithreading, exception Handling, packages, etc.
4. To explain components of GUI based programming.

Teaching Scheme

Course Code	Course Name	Teaching Scheme			Credits Assigned			
		Theory	Practical	Tutorial	Theory	Practical/Oral	Tut	Credits
CSL304	Skill based lab course: OOP with Java	--	2+2	--	--	02	---	02

Examination Scheme

Course Code	Course Name	Theory Marks				Term Work	Practical & Oral	Total
		Internal Assessment			End Sem Exam			
		Test1	Test2	Avg				
CSL304	Skill based lab course: OOP with Java	--	--	--	--	50	25	75

Syllabus:

1. **Introduction to Object Oriented Programming**
 - 1.1. OOP concepts: Objects, class, Encapsulation, Abstraction, Inheritance, Polymorphism, message passing.
 - 1.2. Java Virtual Machine
 - 1.3. Basic programming constructs: variables, data types, operators, unsigned right shift operator, expressions, branching and looping.
2. **Class, Object, Packages and Input/output**
 - 2.1. Class, object, data members, member functions Constructors, types, static members and functions Method overloading
 - 2.2. Packages in java, types, user defined packages Input and output functions in Java,
 - 2.3. Buffered reader class, scanner class
3. **Array, String and Vector**

Array, Strings, String Buffer, Vectors
4. **Inheritance**

Types of inheritance, Method overriding, super, abstract class and abstract method, final, Multiple inheritance using interface, extends keyword
5. **Exception handling and Multithreading**
 - 5.1. Exception handling using try, catch, finally, throw and throws, Multiple try and catch blocks, user defined exception. Thread lifecycle, thread class methods, creating threads using extends and implements keyword.
6. **GUI programming in JAVA**
 - 6.1. Applet and applet life cycle, creating applets, graphics class functions, parameter passing to applet, Font and color class. Event handling using event class.
AWT: working with windows, using AWT controls for GUI design Swing class in JAVA
Introduction to JDBC, JDBC-ODBC connectivity, JDBC architecture.

Lab Plan : SEM III-OOP with Java -CSL304**Modes of Content Delivery:**

i	Class Room Teaching	v	Self-Learning Online Resources	ix	Industry Visit
ii	Tutorial	vi	Slides	x	Group Discussion
iii	Remedial Coaching	vii	Simulations/Demonstrations	xi	Seminar
iv	Lab Experiment	viii	Expert Lecture	xii	Case Study

Term : 18th July – 30 Oct 2022 (UT1 : 05 Sept - 07 Sept) (UT2 : 17Oct -19 Oct)

Ex. No.	Batch	Batch	CO Map	Topic	Experiment Title
	D Mon	B Wed			
01	01 Aug	03 Aug	LC01	Control Statement	Write a program to display the Number pattern. Write program to build a calculator that performs addition and division. Write a program to find LCM/GCD for two numbers. //Read Input Through Keyboard
02	08 Aug	10 Aug	LC01	Control Statement	Write a program that takes three numbers as input arguments through command line and find the maximum of three.
03	22 Aug	17 Aug	LC02	Class/Object/Constructor	Write a class Employee for a company and display details.(with static variable and function)
04	22 Aug	17 Aug	LC01	Recursion	Calculate x^n using recursion and static function.
05	29 Aug	24 Aug	LC02	Object Passing/Returnin g	Write a class Shape with overloaded functions for calculate area of different shapes. Write a Program to add two Complex numbers.
06	05 Sept	07 Sept	LC03	1 D Array / Array of Objects	Write a program to print the employee of an organization in ascending order of their salary..
07			LC03	2-D Array	Write a Program to check if a matrix is symmetric or not.
08	12 Sept	14 Sept	LC03	String	Write a program to count no of letters, digits, spaces, special characters in a string.
				StringBuffer	Write a program that compares two Strings using String and StringBuffer class. Or Write the program that checks if the string is palindrome?

09	12 Sept	14 Sept	LC03	Vector	Simulate the shopping cart for the operations add Item, remove Item, Pay the bill and exit. It allows the customer to add/remove the product item in the cart. Finally display the bill for the items selected by the customer.
10	19 Sept	21 Sept	LC04	Single Level Inheritance (super)	Write a program to implement single inheritance types. Clock—DigitalClock
				Multi-level Inheritance (Super)	Write a program to implement multilevel inheritance types. Person—Employee—Manager
11	26 Sept	28 Sept	LC04	Abstract Class and Hierarchical Inheritance	Write a program to implement hierarchical inheritance types. abstract Account--- SavingsAccount & CurrentAccount
12	26 Sept	28 Sept	LC04	Interface	Write a program that implements the Stack Interface with push and pop functions.
13	21 Oct	21 Oct	LC06	AWT Controls with event handling and JDBC	Write the Java program that handles events for the above GUI for all the controls.
14	03 Oct	07 Oct	LC05	Exception	Write a program that handles the in-built exceptions using try-catch-finally methods.
			LC05	User Defined Exceptions	Write a program to handle the user-defined exception. A mark list containing register number and marks for a subject is given. If the marks are less than zero, user defined exception; IllegalMarksEnteredException is thrown out and handled with the message “Illegal Marks Entered”. For all valid marks, the candidate will be declared as “Pass” if the marks are equal to or greater than 40, as “Fail” otherwise.
15	10 Oct	12 Oct	LC05	Multi-Threading	Write a program to implement multithreading. There are two threads: Prints “/” [Do this by extending Thread class] Prints “*” [by implementing Runnable interface]
16	10-21 Oct	12-21 Oct	LC06	Applet with Graphics Class	Write an applet to draw the following shapes with some greeting message that accept parameters. Cone, Cylinder, Cube, Square inside a circle, Circle inside a square
				Applet with Parameters	Write an applet that accepts the user name as a parameter from the HTML and displays greeting message.
17			LC0 2-3-4	Mini Project	Mini Project on any real world application with a group of 3-4 students.

Assignments Plan

All the assignment submission should include the

**Problem Statement.
Class diagram and
Program code with
output.**

1. Design and Implement Object Oriented Concepts Polymorphism for the topic of Mini Project selected.
Date of Assignment given: 1 Sept 2022
Date of Assignment submission: 15 Sept 2022 (LC01)
2. Design and Implement Object Oriented Concepts Aggregation for the topic selected.
Date of Assignment given: 15 Sept 2022
Date of Assignment submission: 03 Oct 2022 (LC02)

Mini-Project Plan

Date	Activity
12/08/2022	Project Group, Topic Submission
19/08/2022	Class Diagram Submission
12/09/2022	Project Progress Monitoring
30/09/2022	Project Demonstration
10/10/2022	Correction/Improvements
17/10/2022	Project Report and Presentation

Term Work:

1. Term work should consist of 15 Experiments.
2. Journal must include at least 2 assignments.
3. Mini Project based on the contents of the syllabus.(Group of 2-3 students)
4. The final certification and acceptance of term work ensures that satisfactory performance of laboratory work and minimum passing marks in term work.
5. Total 50-Marks (Experiments 15-Marks, Attendance: 05 Marks, Assignments: 05 Marks, Mini Project: 20 Marks, MCQ as a part of lab assignments: 05 marks)

Oral & Practical Exam

Based on the entire syllabus of CSL 304

Text Books:

1. Herbert Schildt, „JAVA: The Complete Reference“, Ninth Edition, Oracle Press.
2. E. Balagurusamy, „Programming with Java“, McGraw Hill Education.
Porcello, O'Reilly

References books:

1. Ivor Horton, “Beginning JAVA”, Wiley India.
2. Dietal and Dietal, “Java: How to Program“, 8th Edition, PHI .
3. “JAVA Programming“, Black Book, Dreamtech Press.
4. “Learn to Master Java programming“, Staredu solutions

Reference Web Resources:

1. www.nptelvideos.in
2. www.w3schools.com
3. www.tutorialspoint.com
4. <https://starcertification.org/Certifications/Certificate/securejava>

Course Outcomes: [Target 2.5]

After successful completion of the course students will be able to:

CSL304.1: To apply fundamental programming constructs.

CSL304.2: To illustrate the concept of packages, classes and objects.

CSL304.3: To elaborate the concept of strings, arrays and vectors.

CSL304.4: To implement the concept of inheritance and interfaces.

CSL304.5: To implement the concept of exception handling and multithreading.

CSL304.6: To develop GUI based application.

Mapping of CO and PO/PSO

Relationship of course outcomes with program outcomes: Indicate 1 (low importance), 2 (Moderate Importance) or 3 (High Importance) in respective mapping cell.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12		PSO1
CSL304.1	3	3	3											3
CSL304.2	3	3	3											3
CSL304.3	3	3	3											3
CSL304.4	3	3	3											3
CSL304.5	3	3	3											3
CSL304.6	3	3	3		3				3	3	2	3		3
TOTAL	18	18	18		3				3	3	2	3		18
CO-PO MATRIX	3	3	3		0.5				0.5	0.5	0.33	0.5		3

CO ASSESSMENT TOOLS

	Direct Methods (80%)					Indirect Methods (20%)
CSL304.1	Lab 1 (20%)	Lab 2 (20%)	Lab 4 (30%)			UE-O (30%) (100%)
CSL604.2	Lab 3 (30%)	Lab 5 (30%)	MP (10%)	Assign 1 (10%)		UE-O (20%) (100%)
CSL604.3	Lab 6-7 (30%)	Lab 8-9 (30%)	MP (10%)	Assign 2 (10%)		UE-O (20%) (100%)
CSL604.4	Lab 10-11 (30%)	Lab 12 (30%)	MP (10%)			UE-O (30%) (100%)
CSL604.5	Lab 14 (30%)	Lab 15 (30%)				UE-O (40%) (100%)
CSL604.6	Lab 16 (60%)					UE-O (40%) (100%)

Rubrics for Lab Assignments

Class : S.E. AI & DS

Semester : III

Assignment No:	
Title:	
Date of Performance:	
Roll No:	
Name of the Student:	

Evaluation:

Sr. No.	Performance Indicator	Excellent	Good	Below Average
1	On time Completion & Submission (01)	Next Pract (01)	Complete but not submitted in next practical (0.5)	Not on Time (00)
2	Logic/Class Diagram (02)	Correct (02)	Partial (1.5)	Tried (01)
3	Coding Standards (02) : Neat and clean work Comments/indentation/Naming conventions , Output/Test Cases	All used (03)	Partial (02)	Rarely followed. (01)
4	Efforts (03)	Student worked very diligently and efficiently in the lab (03)	Student showed reasonable effort, diligence, and efficiency. (02)	Student showed Little effort and efficiency. (01)
5	Post Lab Assignment (02)	Done well (02)	Partially Correct (1.5)	Submitted (01)

Signature

Rubrics for Mini Project

Class : S.E. AI and DS
Semester : III

Subject Name :OOP with Java
Subject Code :CSL304

Practical No:	
Title:	
Date of Performance:	
Roll No:	
Name of the Student:	

Rubric for Mini Project

Indicator	Very Poor	Poor	Average	Good	Excellent
Timeline: Maintains project deadline (2)	Project not done (0)	More than two session late (0.5)	Two sessions late (1)	One session late (1.5)	Early or on time (2)
Completeness: Complete all parts of project (2)	N/A	< 40% complete (0.5)	~ 60% complete (1)	~ 80% complete(1.5)	100% complete(2)
Application Design:(4)	Design aspects are not used (0)	Poorly designed (1)	Project with limited functionalities (2)	Working project with good design (3)	Working project with efficient design (4)
Features used (10)	N/A	Aggregation(4),	Inheritance (3), Aggregation (3),	Inheritance (3), Aggregation(3), Polymorphism (2)	Inheritance(3), Aggregation(3), Polymorphism(2) Database (2) with creativity

Signature