Course Code	Course name	L	T	P	C
CSEG2020	Object Oriented Programming	3	0	0	3
Total Units to be Covered: 6		Total Contact Hours: 45			
Prerequisite(s):	Programming in C - CSEG1025	Syllabus version: 1.0			

Course Objectives

1. Understand the need for OOPs and develop Java programs with object-oriented features.
2. Learn the concepts of JDBC and develop standalone application with GUI Panel.
3. Design & implement Java applications for real world scenarios.

Course Outcomes

CO1. Understand Object Oriented Programming concepts and architecture of Java.

CO2. Analyze and model the real-world entity using Java programming language.

CO3. Develop packages with Generics and Implement Interfaces with Exception handling.

CO4. Create Stand-alone Java applications using GUI swings and JDBC.

CO-PO Mapping

Program Outcomes / Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	1	-	-	-	-	-	-	-	-	-	-	-	2	3	-
CO 2	-	3	3	-	-	-	-	-	-	-	-	-	2	3	-
CO 3	-	3	3	-	-	-	-	-	-	-	-	-	2	3	-
CO 4	-	-	-	2	-	-	1	-	2	2	-	-	2	3	-
Average	.25	1.5	1.5	.5	-	-	.25	-	.5	1	-	-	2	3	-

1 – Weakly Mapped (Low) **2 – Moderately Mapped (Medium)**

3 – Strongly Mapped (High) **"_" means there is no correlation**

Syllabus

Unit I: Introduction to OOPs **5 Lecture Hours**

Object Oriented Programming History and Evolution, Object Oriented Programming Principles, Features of Java, Input Output Statements, Comment Line Arguments, Data Types, Variables, Operators, Program Control Statements, Arrays, Type of Arrays, Strings.

Unit II: Classes, Inheritance, Packages and Interfaces **8 Lecture Hours**

Class Fundamentals, Objects, Constructors, Garbage Collection, this Keyword, Java's Access Modifiers, Method Overloading, static Keyword, Inheritance, Types of Inheritance, super to Access Superclass Members, Method Overriding, Abstract Classes, Using final, Packages and Interfaces, Build-in Interface, User defined Interfaces.

Unit III: Nested Classes, Exceptions, Multithreading & IO Streams **8 Lecture Hours**

Nested Classes, Types of Nested Classes, Exception Handling, Exception Handlers, Concurrent Programming, The Thread Class and Runnable Interface, Thread Priorities, Synchronization, Java's I/O Streams, Byte Streams and Character Streams, FileWriter, FileReader.

Unit IV: Generics, Lambdas, GUI Swing & Database Connectivity **8 Lecture Hours**

Generics Fundamentals, Generic Class, Generic Methods, Lambdas, Functional Interfaces, Swing, Components and Containers, Layout Managers, Swing Event Handling, Event Listeners, Event Classes and Listener Interfaces, Swing Controls, Database Connectivity, Statement, Prepared Statement, CallableStatement, Resultset. Persistent Data.

Unit V: Collections and Wrapper Class **6 Lecture Hours**

Collections, Iteration, Collection Interface, Set and SortedSet, List, Map and SortedMap, Wrapped Collections and Collections Class, Wrapper classes and loading classes.

Unit VI: Capstone Project **10 Lecture Hours**

Create Standalone Java Project, Designing of UML and database diagrams, GUI Panel development using swing, Establish connection with Database and Panel. Source Code Management and Collaboration using Git/GitHub. Unit Testing using JUnit, Integration Testing, Build and Artifactory Management.

Total lecture Hours 45

Textbooks

1. Herbert Schildt, "Java: A Beginner's Guide", 9th Edition, McGraw-Hill Education, 2022.

2. Allen B. Downey and Chris Mayeld, "Think Java: How to Think Like a Computer Scientist", 2nd Edition, O'Reilly Media Publishers, 2020.

Reference Books

1. Herbert Schildt, "Java: The Complete Reference", 12th Edition, McGraw Hill Publisher, 2022.

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination

Examination Scheme

Components	IA	MID SEM	End Sem	Total
Weightage (%)	50	20	30	100

Course Code	Course name	L	T	P	C
CSEG2120	Object Oriented Programming Lab	0	0	2	1
Total Units to be Covered:11		Total Contact Hours: 30			
Prerequisite(s):	Programming in C Lab - CSEG1125	Syllabus version: 1.0			

Course Objectives

1. Design and code the programs using java concepts.
2. Utilize the flexibility and modularity provided by OOPs using Java.
3. Implement Exception handling and Multithreading in Java
4. Develop server side applications using design patterns and data base connectivity

Course Outcomes

At the end of this course student should be able to

CO 1. Demonstrate object-oriented concepts using Java Language.

CO 2. Implement programs in Java using packages, interfaces and exceptions.

CO 3. Apply strings, threads and collections in Java.

CO 4. Develop server side applications using JSP, servlet and JDBC

CO-PO Mapping

Program Outcomes / Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	1	2	2	-	2	-	-	-	-	-	-	-	1	3	-
CO 2	1	2	2	2	2	-	-	-	-	-	-	-	1	3	-
CO 3	1	2	2	1	2	-	-	-	-	-	-	-	1	3	-
CO 4	1	2	2	-	2	-	-	-	-	-	-	-	1	3	-
Average	1	2	2	.75	2	-	-	-	-	-	-	-	1	3	-

1 – Weakly Mapped (Low) **2 – Moderately Mapped (Medium)**

3 – Strongly Mapped (High) **"_" means there is no correlation**

List of Experiments

Experiment 1	Introduction to Java Environment
Experiment 2	Basic Java Programming
Experiment 3	Basic Java Programming
Experiment 4	Inheritance
Experiment 5	Interface
Experiment 6	Package
Experiment 7	Exceptions
Experiment 8	Strings Handling and Wrapper Class
Experiment 9	Threads and Collections
Experiment 10	JDBC
Experiment 11	Servlets

Total Lab hours 30

Textbooks

1. Ken Arnold, and James Gosling, "The Java Programming Language", 3rd Edition, Pearson, 2018.

2. Khalid Mughal, "A premier guide to SCJP", 3rd Edition, Pearson.

3. Bruce Ackel, "Thinking in Java", 3rd Edition, Pearson.

4. Video resources http://www.youtube.com and blackboard.

Reference Books

Modes of Evaluation: Quiz/Assignment/ presentation/ extempore/ Written Examination

Examination Scheme

Components	Quiz & Viva	Performance & Lab Report
Weightage (%)	50	50

Course Code	Course name	L	T	P	C
CSEG2064	Software Engineering	3	0	0	3
Total Units to be Covered: 5		Total Contact Hours: 45			
Prerequisite(s):		Syllabus version: 1.0			