

SEMESTER II

Course Code	Course name	L	T	P	C
	Java Programming	3	0	0	3
Total Units to be Covered: 6			Total Contact Hours:		
		Syllabus version: 1.0			

Course Objectives

1. Understand the need of 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 application for real world scenarios.

Course Outcomes

On completion of this course, the students will be able to

CO1. Realize 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

[illegible]

CO3	-	3	3	-	-	-	-	-	-	2	-	-	-
CO4	-	-	-	2	-	-	1	-	2	2	-	-	-
Average	.25	1.5	1.5	.5	-	-	.25	-	.5	1	-	-	-

1 – Weakly Mapped (Low)
3 – Strongly Mapped (High)

2 – Moderately Mapped (Medium)
“ - ” means there is no correlation

Syllabus

Unit I: Fundamentals

4 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

7 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. H. Schildt, Java: A Beginner's Guide, Eighth Edition /. New York, N.Y.: Mcgraw-Hill Education, 2019.

Reference Books

1. A. Downey and C. Mayfield, Think Java : how to think like a computer scientist. Sebastopol, CA: O'Reilly Media, 2016.
2. H. Schildt, Java: The Complete Reference, Eleventh Edition /. New York, N.Y.: Mcgraw-Hill Education, 2019.

Online Reference

1. Java By Prof Kannan Moudgalya, Free Spoken Tutorial (Swayam) Project 2020, Indian Institute of Technology Bombay, URL:
https://onlinecourses.swayam2.ac.in/aic20_sp13
2. Eclipse and Java for Total Beginners:Free Video Tutorials, URL:
<https://eclipsetutorial.sourceforge.net/totalbeginner.html>

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

Examination Scheme

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

Detailed breakup of Internal Assessment

Internal Assessment Component	Weightage in calculation of Internal Assessment (100 marks)
Quiz 1	15%
Quiz 2	15%
Class Test 1	15%
Class Test 2	15%
Assignment 1/Project	20%
Assignment 2/Project	20%