

24CSP012	JAVA PROGRAMMING (Common to AD, CS, IT)	L	T	P	J	C
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PC		SDG		9		

Pre-requisite courses	Nil	Data Book / Codes / Standards (If any)	Nil
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Course Objectives:		The purpose of taking this course is to:
1	Understand the basics of Java programming, including loops, arrays, and string manipulations.	
2	Apply the principles of Object-Oriented Programming (OOP) such as inheritance, polymorphism, and abstraction.	
3	Learn and implement Java Collections, Strings, and lambda expressions.	
4	Enable students to perform file operations and utilize the Java Collection Framework.	
5	Equip students with skills to develop GUI-based applications and connect them to databases.	

Course Outcomes:		After successful completion of this course, the students shall be able to	Bloom's Taxonomy Level (BTL)
CO 1	Apply the core principles of Java programming and Object-Oriented Programming (OOP) concepts to write modular, efficient Java applications		Ap
CO 2	Utilize Java packages, interfaces, and exception handling mechanisms to build reusable and error-resilient code		Ap
CO 3	Develop multi-threaded applications and perform string and wrapper class manipulations in Java.		Ap
CO 4	Analyse input/output operations and use Java's collection framework for real-time data storage and retrieval		An
CO 5	Develop GUI-based Java applications using event controls and connect them to databases using JDBC		Ap

	Program Outcomes (PO) (Strong-3, Medium – 2, Weak-1)											Program Specific Outcomes (PSO)	
	1	2	3	4	5	6	7	8	9	10	11		
Course Outcomes (CO)	Engineering Knowledge	Problem Analysis	Design/Development of Solutions	Conduct Investigations of Complex Problems	Engineering Tool Usage	The Engineer and The World	Ethics	Individual and Collaborative Team work	Communication	Project Management and Finance	Life-Long Learning	PSO-1	PSO-2

1	2	2	3		2							2	
2	2	2	3										
3	2	2	3						2	2			
4	3	3	2						1	2		2	
5	2	2	3										

<u>Course Content</u>	
JAVA PROGRAMMING BASICS OOP Basics – Java Features -Java Programming Concepts, Control statement, Arrays, Method Overloading, Abstract Classes, Inheritance, Method Overriding	12 Hours
PACKAGES, INTERFACES AND EXCEPTION HANDLING Packages and Interfaces: Packages – Packages and Member Access –Importing Packages – Interfaces, Exception Handling-Try, Catch, and Finally, Throw and Throws Clause-User-defined Exception	12 Hours
MULTITHREADING AND STRINGS Multithreaded Programming: Life cycle of a thread -Java Thread Model–Creating a Thread and Multiple Threads – Priorities – Synchronization – Inter Thread Communication–Multithreading- Wrappers – Auto boxing - String handling String operations -String methods - Wrapper classes	12 Hours
FILES AND COLLECTION FRAMEWORK I/O Basics – Reading and Writing Console I/O – Reading and Writing Files – Streams – Byte Streams and Character Streams – Java Collection Framework – Array, List, LinkedList, Queue – Stack and Map – Generic Collections – Introduction to Lambda Expressions.	12 Hours
EVENT HANDLING AND DATABASE CONNECTIVITY GUI programming using Swing and JavaFX – Limitations of applets – Event-driven programming model – JFrame, Stage and Scene – Event handling: action, mouse and key events – Basic Swing controls and layout managers – JavaFX controls and Menus Database connectivity using JDBC – JDBC architecture and drivers – Connecting Java applications with databases - Integration of Swing/JavaFX applications with databases.	12 Hours

Theory Hours:	Tutorial Hours:	Practical Hours:	60	Project Hours:	Total Hours:	60
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Learning Resources	
Textbooks	
1. Herbert Schildt, Java: The Complete Reference, 12th Edition, McGraw-Hill Education, 2022. 2. Kathy Sierra and Bert Bates, Head First Java, 2nd Edition, O'Reilly Media, 2005. 3. Rod Johnson, Expert One-on-One J2EE Development without EJB, Wiley Publishing, 2004.	
Reference books/ Web Links	
1. Bruce Eckel, Thinking in Java, 4th Edition, Prentice Hall, 2006. 2. Josh Long, Cloud Native Java: Designing Resilient Systems with Spring Boot, Spring Cloud, and Cloud Foundry, O'Reilly Media, 2017. 3. Craig Walls, Spring in Action, 5th Edition, Manning Publications, 2018.	

4. Paul Deitel and Harvey Deitel, Java How to Program, 11th Edition, Pearson, 2017.
Online Resources
1. https://www.coursera.org/specializations/java-programming 2. https://www.edx.org/learn/java 3. https://www.codecademy.com/learn/learn-java 4. https://docs.oracle.com/en/java/javase/

Assessment (Practical course)
Lab Workbook, Mini project, Experimental Cycle tests, viva-voce and End Semester Examination

Course Curated by			
Expert(s) from Industry	Expert(s) from Higher Education Institution		Internal Expert(s)
-	-		Dr.S.Sathyavathi, Ms.G.Shobana Ms.M.Jhansisridevi Assistant Professor Department of Information Technology
Recommended by BoS on	09.05.2025		
Academic Council Approval	No: 28	Date	26.06.2025