DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS
KURUKSHETRA UNIVERSITY, KURUKSHETRA

Session: 2023-24			
Part A - Introduction			
Subject	BCA		
Semester	III		
Name of the Course	Java OOP Foundations		
Course Code	B23-CAP-301 (Common with B23-CAI-301, B23-CDS-301, B23-CTS-301)		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)	CC		
Level of the course (As per Annexure-I	100-199		
Pre-requisite for the course (if any)	Knowledge of any Computer Programming Language		
Course Learning Outcomes(CLO):	After completing this course, the learner will be able to: 1. Implement simple java programs. 2. Implement multiple inheritance using Interfaces 3. Implement Exception Handling and File Handling. 4. Use AWT to design GUI applications. 5* develop the project using java.		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	3	2	5
Max. Marks:100(70(T)+30(P)) **Internal Assessment Marks:30(20(T)+10(P))** **End Term Exam Marks: 70(50(T)+20(P))**	**Time: 3 Hrs.(T), 3Hrs.(P)**		
Part B- Contents of the Course			

Instructions for Paper- Setter

Examiner will set a total of nine questions. Out of which first question will be compulsory. Remaining eight questions will be set from four unit selecting two questions from each unit. Examination will be of three-hour duration. All questions will carry equal marks. First question will comprise of short answer type questions covering entire syllabus.

Candidate will have to attempt five questions in all, selecting one question from each unit. First question will be compulsory.

Practicum will be evaluated by an external and an internal examiner. Examination will be of three-hour duration.

Unit	Topics	Contact Hours
I	Object Oriented Programming and Java Fundamentals: Structure of Java programs, Classes and Objects, Data types, Type Casting, Looping Constructs.	10
II	Interfaces: Interface basics; Defining, implementing and extending interfaces; Implementing multiple inheritance using interfaces Packages: Basics of packages, Creating and accessing packages, System packages, Creating user defined packages	10
III	Exception handling using the main keywords of exception handling: try, catch, throw, throws and finally; Nested try, multiple catch statements, creating user defined exceptions. File Handling Byte Stream, Character Stream, File I/O Basics, File Operations	10
IV	AWT and Event Handling: The AWT class hierarchy, Events, Event sources, Event classes, Event Listeners, Relationship between Event sources and Listeners, Delegation event model, Creating GUI applications using AWT.	10
V*	Practicum: Students are advised to do laboratory/practical practice not limited to, but including the following types of problems: • WAP to find the sum of 10 numbers, entered as command line arguments. • WAP to find the area of rectangle and circle using Interface. • WAP to implement multiple inheritance. • WAP to show the concept of packages. • WAP to handle the Exception using try and multiple catch blocks and a finally block. • WAP for Implementing Calculator in an Applet, use appropriate Layout Manager. • Write Applet code to add two integers in textbox and their sum should appear in third textbox. • Write AWT program in Java to find the sum, Multiplication and average of three numbers entered in three Text fields by clicking the corresponding Labeled Button. The result should be appearing in fourth text field. • Write Applet code to show all the activities of Mouse using Mouselistener and MouseMotionlistener. • What are various stream classes in Java? Write Java code to read character from a file and write into another file. • What are AWT Classes? Write Java Program to generate Even numbers and Odd Numbers in TextField "T1 and T2 respectively" while pressing Button "Even" and "Odd". • Write a program to Copy the text from one file to another using byte stream.	25
	Suggested Evaluation Methods	

Internal Assessment:	End Term
➢ **Theory** • Class Participation: 5 • Seminar/presentation/assignment/quiz/class test etc.: 5 • Mid-Term Exam: 10 ➢ **Practicum** • Class Participation: 5 • Seminar/Demonstration/Viva-voce/Lab records etc.: 5 • Mid-Term Exam: NA	**Examination:** A three hour exam for both theory and practicum.

Part C-Learning Resources

Recommended Books/e-resources/LMS:
- Schildt, H. (2018). Java: The Complete Reference. 10th edition. McGraw-Hill Education.
- Balaguruswamy E. (2014). Programming with JAVA: A Primer. 5th edition. India: McGraw Hill Education
- Horstmann, C. S. (2017). Core Java - Vol. I – Fundamentals (Vol. 10). Pearson Education
- Schildt, H., & Skrien, D. (2012). Java Fundamentals - A Comprehensive Introduction. India: McGraw Hill Education.

*Applicable for courses having practical component.