



GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATIONS

Programme	B. Sc. IT (Hons.)	Branch/Spec.	Computer Applications
Semester	III	Version	1.0.0.0
Effective from Academic Year	2025-26	Effective for the batch Admitted in	June 2024
Subject Code	U23A1OOP	Subject Name	Object Oriented Programming Concepts

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	-	2	-	4	Theory	50	50	100
Hours	2	-	4	-	6				

Objective:

Students can understand the concepts of Object-Oriented Programming (OOP) and effectively apply them in Java.

Pre-requisites:

Basic knowledge of C programming concepts such as variables, data types, operators and control structures.

Course Outcomes :

Name of CO	Description
CO1	Understand Object Oriented Programming Concepts.
CO2	Understand and apply selection statements and iteration statements.
CO3	Learn to define and call methods, implement constructor overloading and various access modifiers.
CO4	Develop the ability to manipulate and access array elements, String class, Vector class and Interface.

Mapping of CO and PO

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	1	3	0	3	1	1	3	3	2	2	1
CO2	1	2	3	1	3	1	2	2	2	2	2	1
CO3	1	2	2	2	3	1	2	3	3	0	2	1
CO4	1	1	3	2	3	1	2	2	2	3	2	1

Theory syllabus		
Unit	Content	Hrs
1	Basics Concepts of Object Oriented Programming: Introduction to JAVA: History of Java, Java Features, JDK, Byte code, JVM and JAVA Program Structure. Basic of JAVA: Object and Class, Data Abstraction and Encapsulation, Inheritance, Polymorphism, Dynamic Binding. Data types and Variables: Tokens (Keywords, Identifier, Literals, Operators, Separators), Variables, Data Types, Type Conversion and Casting.	10
2	Decision Making, Branching and Looping: Selection Statement: if – else, nested if-else, else if ladder, switch Statements. Iteration statements: while, do...while, for Statements. Jump Statements: break, continue.	4
3	Introduction to Class, Method and Object: Creating class and Methods: Defining Classes, Creating Objects, Defining Methods, Calling Methods, Method Parameters, Method overloading. Constructors: Introduction, Default & Parameterized Constructors, Constructor Overloading. Inheritance: Introduction, Single, Multilevel, Hierarchical Inheritance. Method Overriding, final Variable, final Methods & final Class, abstract Methods and Abstract Class. Access Modifiers (Visibility Controls) : public, private, default, protected.	10
4	Array, String, Vectors, Interfaces: Array: Creating and initializing array, Two-dimensional array. String: Java.lang Package classes (Math, String). Vectors: Vector methods. Interfaces: Defining an Interfaces, Implementing Interfaces, multiple inheritance.	6
Practical Content:		
List of programs specified by the subject teacher based on above mentioned topics		
Text Books:		
1	Programming with Java, E. Balagurusamy, Tata McGraw Hill Publication.	
2	The Complete Reference JAVA, Herbert Schildt, Tata McGraw Hill.	
3	Teach Yourself JAVA, Joseph O’Neil & Herb Schildt, Tata McGraw Hill.	
Reference Books:		
1	Programming java, Sachin Malhotra & Saurabh Chaudhary, Oxford Publication.	
2	Head first java, Kathy Sierra & Bert Bates, O'Reilly.	
3	Effective Java, Joshua Bloch, Devs needing a perspective shift.	
Web References / MOOC / Certification Course		
1	https://onlinecourses.swayam2.ac.in/aic20_sp13/preview	
2	https://www.coursera.org/learn/fundamentals-of-java-programming	
3	https://onlinecourses.nptel.ac.in/noc24_cs105/preview	
4	https://www.shiksha.com/online-courses/java-course-swayl24	

Question Paper Scheme:

University Examination Duration:2 Hours

Note for Examiner:

Q-1 Must be common from any topics from the syllabus.

Q-2 And onwards must be from specific topics and internal choice or option can be given.

Paper Structure:

Q-1 Must be from all Unit Any Five out of seven **(25 Marks)** [CO1, CO2, CO3, CO4]

Q-2 Must be from Unit 1: Any Two out of Three **(06 Marks)** [CO1]

Q-3 Must be from Unit 2: Only one question without any option **(05 Marks)** [CO2]

Q-4 Must be from Unit 3: Any Two out of Three **(08 Marks)** [CO3]

Q-5 Must be from Unit 4: Any Two out of Three **(06 Marks)** [CO4]