GANPAT UNIVERSITY

FACULTY OF COMPUTER APPLICATIONS

Programme	Master of Computer Applications	**Branch/Spec.**	Computer Application
Semester	I	**Version**	1.0.0.0
Effective from Academic Year	2024-25	**Effective for the batch Admitted in**	June 2024
Subject Code	P11A1JP	**Subject Name**	Java Programming

Teaching scheme						**Examination scheme (Marks)**			
(Per week)	**Lecture (DT)**		**Practical (Lab.)**		**Total**		**CE**	**SEE**	**Total**
	L	TU	P	TW					
Credit	03	00	02	00	05	Theory	40	60	100
Hours	03	00	04	00	07	Practical	20	30	50

Objective:

To provide opportunities of Data structure and algorithm using Object Oriented Java language.

Pre-requisites:

Basic knowledge of C is preferable.

Course Outcomes :

Name of CO	**Description**
CO1	Explain the fundamental concepts of Object-Oriented Programming and demonstrate the structure and execution of basic Java progra

	ms.	
CO2	Construct Java applications by applying classes, objects, constructors, arrays, inheritance, abstract classes, and exception handling mechanisms.	
CO3	Implement searching and sorting algorithms and analyze their efficiency based on algorithmic complexity.	
CO4	Apply operations on stacks, queues, linked lists, trees,	

	and graphs to solve computational problems.

Mapping of CO and PO								
Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8
CO1	3	2	1	2	–	–	–	1
CO2	3	2	2	3	1	–	–	1
CO3	2	3	1	3	–	–	–	1
CO4	2	3	2	3	1	–	1	1

Content:

Unit		Hrs
	SECTION – I	
1	**Introduction to OOPs concept:** Object Oriented Paradigm; Data Abstraction; Encapsulation; Inheritance; Polymorphism; Dynamic Binding; Byte code; JVM; JDK; Structure of Java Program; Compiling and Executing; Data types; Variables; Scope of Variables; Operators & types; Adding Methods & parameters; Static and Final variables & methods; Class; Object; new operators;	11
2	**Fundamentals of Class & Object:** Access modifier; Constructors and its types; Inheritance and its types; Array and types of array; Method Overloading & Overriding; Abstract class and Exception Handling; Basic concept of Package and Interface.	11
	SECTION – II	
3	**Introduction to Data Structure with Sorting & Searching:** Classification of Data Structure Primitive Data Structure, Non Primitive Data Structure, Linear Data Structure, Non Linear Data Structure; Introduction of Searching; Types of Searching Sequential Search, Binary Search; Introduction of Sorting, Types of Sorting - Selection, Bubble, Insertion, Quick.	11
4	**Fundamentals of Linear & non-Linear data structure:** Introduction to Stack, Stack Operations, Applications of Stack; Introduction to Queue, Types of Queue – Simple Queue, Circular Queue, Double Ended Queue, Queue Operations, Applications of Queue; Introduction to Linked List, Types of Linked List – Single and Double Linked List, Application of Linked Lists; Concept of Tree and Graph, Breadth first search , Depth first search.	12

Practical Content:

List of programs specified by the subject teacher based on above mentioned topics

Reference Books:

1	The Complete Reference Java 2 By Herbert Schildt's, Tata McGraw-Hill Edition
2	Classic Data Structures by Debasis Samanta, PHI Publications

3	Data Structures and Algorithms Made Easy in Java: Data Structure and Algorithmic Puzzles, by Narasimha Karumanchi, Second Edition, CareerMonk Piblications
MOOC/Certification Courses:	
1	https://www.w3schools.com/java/
2	https://docs.oracle.com/javase/tutorial/
3	https://www.studytonight.com/data-structures/
4	https://nptel.ac.in/courses/106/105/106105225/
5	https://www.edx.org/course/introduction-to-java-programming-fundamental-data
6	https://www.vlab.co.in/broad-area-computer-science-and-engineering

Question Paper Scheme:

Question Paper Scheme:

University Examination Duration: 3 Hours

Note for Examiner: -

(I) Questions 1 and 4 are compulsory with no options.

(II) Internal options should be given in questions 2, 3, 5 and 6.

SECTION - I

Q.1 –8 Marks

Q.2 –11 Marks

Q.3 –11 Marks

SECTION - II

Q.4 –8 Marks

Q.5 –11 Marks

Q.6 -11 Marks