

MCA –SECOND SEMESTER

Course title: **Object Oriented Programming in Java**
Course no: **PSCSATC223**
No. of credits: **04**
Total marks: **100**

Minor Test 1: **20 Marks of 1.5 hours duration**
Minor Test 2: **20 Marks of 1.5 hours duration**
Major Test: **60 Marks of 3.0 hours duration**

For examinations to be held in May- 2022, 2023, and 2024

Course objectives & learning outcomes:

1. To gain knowledge about Java language.
2. To understand the fundamentals of object-oriented programming in Java.
3. To understand the basic principles of web application programming.
4. Students will be able to design dynamic web application using database connectivity.

UNIT-I Java Language Basics

Features, Object Oriented concepts, Java Virtual Machine Concepts, Primitive Data Type and Variables, Java Keywords, Java Operators, Expressions, Control Statements and Arrays. Class and Objects, Static methods, Constructors, Method Overloading

UNIT-II Inheritance, Packages and Interfaces

Inheritance, Access Control, Method Overriding, Garbage Collection, Abstract Classes, Polymorphism, Packages, Interfaces, Exceptions Handling, Types of Exceptions, Writing Exception Subclasses, Multithreading, Synchronization in Java.

UNIT-III I/O, Files and Applets Programming

I/O in Java, Byte Stream Classes, Character Stream Classes, Reading and Writing to Console, Reading and Writing Files, The Transient and Volatile Modifiers, String and String Buffer Class, Applet Class, An Applet Skeleton, adding images & sound, Passing parameters to an applet.

UNIT-IV Events and AWT

AWT Components, Building User Interface with AWT, Handling Events of Mouse and Keyboards, Event Delegation Model (Events, Listeners, interfaces), Layouts and Layout Manager

UNIT-V Regular Expression and JDBC

Regular Expressions; JDBC implementation, Connection class, Statements, Types of statement objects, (Statement, Prepared Statement and Callable Statement), Types of result set, Result Set Metadata, Catching Database Results, Handling database Queries, JDBC and AWT.

Suggested readings/ references:

1. Herbert Schildt- "Java The Complete Reference", Tata McGraw Hill, Tenth edition, 2017.
2. K. Arnold and J. Gosling, "The JAVA programming language", Third edition, Pearson Education, 2000.
3. Shubhnandan S. Jamwal, "Java 9", The Team, Shroff Publishers and Distributor Pvt Ltd, 2018.
4. E. Balagurusamy, "Programming with JAVA", Tata McGraw Hill, Fifth edition.
5. Dietel&Dietel, "Java How to Program", Pearson Education, Eleventh edition.
6. Steven Holzner, "Java2 Black Book", Dreamtech Press.
7. George Reese, "Database Programming with JDBC and Java", 2nd Edition, O'Reilly. 8. Bruce Eckel, "Thinking in Java", PrenticeHall.

NOTE FOR PAPER SETTERS FOR MAJOR EXAMINATIONS -

The question paper shall be divided into sections A & B as below. No question shall be repeated in the question paper.

Section A - There shall be FIVE short answer type questions of THREE mark each. In this section, questions shall be covered from each unit and the candidates shall be required to answer all the questions. **(3 x 5 = 15 marks)**

Section B - There shall be THREE long answer type questions each set from Unit –III, IV and V with internal choice. Each question shall carry FIFTEEN marks. **(3 x 15 = 45 marks)**