Final

ADIKAVI SRI MAHARSHI VALMIKI UNIVERSITY, RAICHUR

SYLLABUS

B.Sc. Three Year Degree Program for the Subject

Computer Science

With Effect from 2024-25

DISCIPLINE SPECIFIC CORE COURSE (DSC) FOR SEM I-IV, SKILL ENHANCEMENT COURSE (SEC) FOR SEM IV/V/VI and ELECTIVE COURSES FOR SEM V AND VI

AS PER N E P (Revised): 2024

SEMESTER: IV

Course Code: CC4	Course Title: Java Programming
Course Credits: 04	Contact Hours per Week: 04
Total Contact Hours: 64	IA Marks: 20
Exam Marks: 80	Examination Duration: 03 Hours

Course Learning Objectives:
1. To introduce the object-oriented programming system concepts
2. To introduce syntax and semantics of Java programming language
3. To develop modular programs using Java
4. To setup JDK environment to create, debug and run Java programs

Course Outcomes: On successful completion of the course, the students shall be able to
To be included
1. Improved Programming Skills:
2. Career Opportunities:
3. Application Development:
4. Object-Oriented Programming (OOP) Foundation:
5. Web Development

Unit-I   **16 Hrs.**

Fundamentals of Object-Oriented Programming: Basic Concepts of Object-Oriented Programming (OOP), Benefits and Applications of OOP. Java Evolution: Java Features, Difference between Java, C and C++, Java and Internet, Java Environment. Overview of Java Language: Introduction to Simple Java Program, Use of Comments and Math function, Application of two classes, Java Program Structure, Java Tokens and statements, Implementing Java program and JVM, Command Line Arguments.
Constants, Variables and Data Types: Constants, Variables, Data Types, Declaration of Variables, Giving values to Variables, Symbolic Constants, Typecasting. Operators & Expressions: Arithmetic operators, Relational operators, Logical operators, Assignment operators, Increment & Decrement operators, conditional operators, Bitwise operators, Arithmetic Expressions, Evaluation of Expressions, Type Conversions in Expressions, Operator Precedence & Associativity.

Unit-II   **16 Hrs.**

Decision Making, Branching & Looping: Decision Making with Control Statements, Looping statements, Jump in loops, Labelled loops. Arrays, Strings and Vectors: 1D arrays, Creating an Array, 2D arrays, Strings and Vectors. Classes, Objects and Methods: Defining Class, Methods Declaration, Constructors, Methods Overloading, static members, Nesting of Methods.

Unit-III   **16 Hrs.**

Inheritance:Extending a class Defining subclass , subclass constructor, Multilevel inheritance, Hierarchical Inheritance Overriding Methods. Interfaces: Multiple inheritance Defining, Extending and implementing interfaces, Accessing interface variable and polymorphism. Packages: Basics of packages, System packages, Creating and accessing packages, creating user

defined packages, Adding class to a package. Exception Handling: Using the main keywords of exception handling: try, catch, throw, throws and finally; Nested try Multiple catch statements.

Unit-IV   **16 Hrs.**

Applets: Applets & its Life cycle

JDBC: Architecture, Driver types, Connectivity, Datatypes, Statements, Resultset, Batch statements

Text books:

1. Somashekara M.T., Guru D. S., Manjunatha K.S.: Object Oriented Programming with JAVA, 2E, PHI Learning, New Delhi, 2024,
2. Balaguruswamy E. (2023). Programming with JAVA: A Primer. 7th edition. India: McGraw Hill Education
3. Schildt, H. (2022). Java: The Complete Reference. 12th edition. McGraw-Hill Education.

References:

1. Arunesh Goyal, The Essentials of JAVA, Khanna Book Publishing Company Private Limited, 2012.
2. Tanweer Alam, Core JAVA, Khanna Book Publishing Company Private Limited, 2015.
3. Y. Daniel Liang, Introduction to Java Programming, 7th Edition, Pearson, 2008.
4. S. Malhotra and S. Choudhary, Programming in Java, 2nd Edition, Oxford University Press, 2014

SEMESTER: IV (Practical)

Course Code:LAB 4	Course Title: Java Programming Lab
Course Credits: 02	Contact Hours per Week: 04
Total Contact Hours: 64	IA Marks: 10
Exam Marks: 40	Examination Duration: 03 Hours

List of Assignments

1. Program to find area of circle using Symbolic constant using Scanner class
2. Program to find largest of 3 number using Nested if statement
3. Program to find grade of student using Switch statement
4. Program to find sum of natural number using while statement
5. Program to find reverse of given number and check whether it is palindrome or not
6. Program to find factorial of given number
7. Program to sort the numbers in an ascending order using ID array
8. Program to illustrate the concept of constructor
9. Program to illustrate the concept of Method overloading
10. Program to illustrate the concept of Single level inheritance
11. Program to illustrate the concept of Package
12. Program to illustrate the concept of Exception handling.
13. Program to display Greet Message using applet
14. Program to illustrate JDBC the concept of using statement object to insert records to the DB table and display the records
15. Program to illustrate JDBC the concept of using prepared statement object to insert records to the DB table and delete operation.

Examination:

- Student has to answer and execute Two programs

Evaluation Scheme for Lab Examination:

Criteria	Marks
Writing Program	10
Execution	20
Record+Viva-Voce	10
IA	10
Total	**50**

SEMESTER: VI (SEC)

Course Code: PRJ	Course Title: Project
Course Credits: 02	Contact Hours per Week: 02
Total Contact Hours: 32	IA Marks: 10
Exam Marks: 40	Examination Duration: 03 Hours

Examination:

- Student has to prepare the project report and present

Evaluation Scheme for Project

Criteria	Marks
Dissertation & Viva-voce	40
IA	10
Total	**50**