PROGRAMME: THREE-YEAR DEGREE

Semester-wise Syllabus under CBCS (w.e.f. 2020-21 Admitted Batch)

II Year B.A. (CA) / B.Sc. (CA), SEMESTER- IV

Discipline: COMPUTER APPLICATIONS

PROGRAMMING WITH JAVA

Semester	Course Code	Course Title	Hours/Week	Hours	Credits
IV	C4	Programming with Java	4	60	3

Model Outcomes:

At the end of the course, the students is expected to DEMONSTRATE the following cognitive abilities (thinking skill) and psychomotor skills.

A. Remembers and states in a systematic way (Knowledge)

1. Develop programming skills
2. Declaration of variables and constants use of operators and expressions
3. learn the syntax and semantics of programming language
4. Be familiar with programming environment of Java
5. Ability to work with textual information (characters and strings) & arrays

B. Explains (Understanding)

6. Understanding a functional hierarchical code organization
7. Understanding a concept of object thinking within the framework of functional model
8. Write program on a computer, edit, compile, debug, correct, recompile and run it

C. Critically examines, using data and figures (Analysis and Evaluation)

9. Choose the right data representation formats based on the requirements of the problem
10. Analyze how Java improves with object-oriented features
11. Evaluate comparisons and limitations of the various programming constructs and choose correct one for the task in hand.

D. Working in 'Outside Syllabus *Area' under a Co-curricular Activity* (Creativity)
Planning of structure and content, writing, updating and modifying computer programs for user solutions

E. Exploring programming and Design with Java classes for code reuse (Practical skills***)

SYLLABUS

Unit	Details
I	**Fundamentals Of Object Oriented Programming:** Introduction, Object Oriented paradigm, Basic Concepts of OOP **Overview of Java Language:** Introduction, Java features, Java program structure, Java Virtual Machine – Java versus C++
II	**Basics of Java:** Identifiers – literals: integer literals - character literals – Floating point literals – string literals. Operators:- Arithmetic operators, relational operators, assignment operators, conditional operator. – Variables, Keywords, Data types, **Input and Output in Java:** Reading Input with Java.util.Scanner Class, Displaying Output with System.out.println( )
III	**Java Control structures:** if, if..else statement – switch statement — while statement – do..while statement – for loop – continue statement - break statement **Arrays**: Arrays, One-dimensional arrays, Creating an array, Two – dimensional arrays, creating a two-dimensional array
IV	**Classes, Objects & Methods:** Introduction, Defining a class, Adding variables, Adding methods, Creating objects, Accessing class members, Constructors, Method overloading, Static members, Nesting of methods
V	**Inheritance**: Introduction, Types of inheritance, Overriding methods, Final variables and methods, Final classes, Abstract methods and classes **Threads**: Introduction, Creating Threads, Extending the Threads, Stopping and Blocking a Thread, Lifecycle of a Thread

Reference books:

1. Programming with Java by E.Balagurusamy
2. Programming in Java by Sachin Malhotra, OXFORD University Press
3. Java complete Reference by Herbert Schildt
4. John R. Hubbard, Programming with Java, Second Edition, Schaum‟s outline Series, TATA McGraw-Hill Company.