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| **Course Code: CSOE5** | **Course Title:** Java Programming |
| Course Credits: 03 | Hours / Week : 03 |
| Total Contact Hours: 42 | Formative Assessment Marks:40 |
| Exam Marks:60 | Exam Duration: 02 hrs. |

**Course Out comes (COs):**

After completing this course satisfactorily, a student will be able to:

* Understand the features of Java and the architecture of JVM

Write, compile, and execute Java programs that may include basic data types and control flow constructs and how typecasting is done.

* Identify classes, objects, members of a class and relationships among them needed for a specific problem and demonstrate the concepts of polymorphism and inheritance.

* The students will be able to demonstrate programs based on interfaces and threads and explain the benefits of JAVA’s Exceptional handling mechanism compared to other Programming Language

Write, compile, execute Java programs that include GUIs and event driven programming and also programs based on files

## Course Content

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| **Content** | **Hours** | |
| **Unit -1** | | |
| **Introduction to Java :** Basics of Java programming, Data types, Variables, Operators, Control structures including selection, Looping, Java methods, Overloading, Math class, Arrays in java. | 6 | |
| **Unit -2** | | |
| **OBJECT ORIENTED PROGRAMMING**  Concept of programming paradigm, procedural paradigm and draw backs, object oriented paradigm concepts, OOP features – inheritance, polymorphism, encapsulation, abstraction and others (with examples), comparison of object oriented paradigm and other paradigms. | 10 | |
| **Unit -3** | | |
| **Classes and Objects**-OOP as a way of viewing world – Members and methods, Responsibilities, Classes and Instances, Summary of Object-Oriented concepts, Introducing classes, Methods and Classes, Constructors, Finalize, Visibility modifiers, Inbuilt classes like String, Character, String Buffer, File, this reference. | 10 | |
| **Unit -4** |  | |
| **Inheritance and Polymorphism:** Inheritance in java, Super and subclass, Overriding, Object class, Polymorphism, Dynamic binding, Generic programming, Casting objects, Instance of operator, Abstract class, Interface in java, Package in java, UTIL package. | 10 | |
| **Unit -5** | | |
| **Event and GUI programming:** Event handling in java, Event types, Mouse and key events, GUI Basics, Panels, Frames, Layout Managers: Flow Layout, Border Layout, Grid Layout, GUI components like Buttons, Check Boxes, Radio Buttons, Labels, Text Fields, Text Areas, Combo Boxes, Lists, Scroll Bars, Sliders, Windows, Menus, Dialog Box, | | 6 |

## Text Books:

1. “Introduction to Java Programming” by Daniel Liang
2. Programming with Java, By E Balagurusamy – A Primer, Fourth Edition, Tata McGraw Hill Education Private Limited.
3. Core Java Volume I–Fundamentals, By Cay S. Horstmann, Prentice Hall
4. Object Oriented Programming with Java :Somashekara, M.T., Guru, D.S., Manjunatha, K.S

## Reference Books:

1. Java 2-The Complete Reference–McGraw Hill publication.
2. Java - The Complete Reference, 7th Edition, By Herbert Schildt McGraw Hill publication.

**BLUEPRINT**

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| Unit Nos | No. of hours | Total marks for which questions are to be asked (including bonus questions) |
| Unit 1 | 6 | 8 |
| Unit 2 | 10 | 15 |
| Unit 3 | 10 | 10 |
| Unit 4 | 10 | 15 |
| Unit 5 | 6 | 8 |
| Unit 6 | 10 | 14 |
| TOTAL |  | 70 |
| Maximum marks for the paper (Excluding bonus questions) =60 | | |