II Year II Semester	**L**	**T**	**P**	**C**
Code:20ES4009	**3**	**0**	**0**	**3**

OBJECT ORIENTED PROGRAMMING THROUGH JAVA

Course Objectives:

This course is designed to:

1. Study the basic concepts and functions of operating systems
2. Understand the concepts of classes and objects and AWT
3. Learn classifications of inheritance
4. Introduce Identifying and rectifying errors using exceptions
5. Study the basic concepts of Collections
6. Emphasize the concepts of AWT

Course Outcomes:

At the end of the course the student will be able to

1. Understand the object oriented programming concepts
2. Create simple applications using classes and objects
3. Develop applications using different types of inheritances
4. Apply parallel processing applications using threads and simple applications using Collections
5. Develop applications GUI applications using AWT

UNIT I

Introduction to OOP, procedural programming language and object oriented language, principles of OOP, applications of OOP, history of java, java features, JVM, program structure. Variables, primitive data types, identifiers, literals, operators, expressions, precedence rules and associativity, primitive type conversion and casting, flow of control.

UNIT II

Classes and objects, class declaration, creating objects, methods, constructors and constructor overloading, garbage collector, importance of static keyword and examples, this keyword, arrays, command line arguments, nested classes.

UNIT III

Inheritance, types of inheritance, super keyword, final keyword, overriding and abstract class. Interfaces, creating the packages, using packages, importance of CLASSPATH and java.lang package. Exception handling, importance of try, catch, throw, throws and finally block, user defined exceptions, Assertions.

UNIT IV

Multithreading: introduction, thread life cycle, creation of threads, thread priorities, thread synchronization, communication between threads. Reading data from files and writing data to files, random access file. Collections: Collections Hierarchy; List – Array List, Linked List; Sets – Hash Set, Tree Set, Linked Hash Set; Queue; Maps – Hash Map, Tree Map, Linked Hash Map; Iterable, Iterator;

UNIT -V

Event handling: event delegation model, sources of event, Event Listeners, adapter classes, inner classes. AWT: introduction, components and containers, Button, Label, Checkbox, Radio Buttons, List Boxes, Choice Boxes, Container class, Layouts, Menu and Scrollbar.

TEXT BOOKS:

1. The complete Reference Java, 8th edition, Herbert Schildt, TMH.
2. Programming in JAVA, Sachin Malhotra, Saurabh Choudary, Oxford.
3. Introduction to java programming, 7th edition by Y Daniel Liang, Pearson.

REFERENCE BOOKS:

1. Dietal & Dietal, Java: How to Program, 8th Edition, PHI, 2010
2. C. S. Horstmann and G. Cornell, Core Java, Vol 1. Fundamentals, 7th Edition, Pearson Education, 2004
3. C. Horstmann, BIG JAVA Compatible with Java 5 & 6, 3rd Edition, Wiley Publishers, 2008