CS-404A	JAVA PROGRAMMING (OPEN ELECTIVE)	L T P C 4 - - 3

COURSE OBJECTIVES:

1. To understand the basic concepts and fundamentals of platform independent object oriented language.
2. To demonstrate skills in writing programs using exception handling techniques and multithreading.
3. To understand streams and efficient user interface design techniques.
4. To know about various Telecommunication Systems.

COURSE OUTCOMES:

After successful completion of the course, the students are able to

1. use the syntax and semantics of java programming language and basic concepts of OOP.
2. develop reusable programs using the concepts of inheritance, polymorphism, interfaces and packages.
3. apply the concepts of Multithreading and Exception handling to develop efficient and error free codes.
4. demonstrate how the java program communicates with the console and disk files using the concept of streams.
5. design event driven GUI and web related applications which mimic the real word scenarios.

UNIT I **(12)**

Introduction : The History and Evolution of Java, an Overview of Java.

Data Types, Variables, and Arrays : The primitive types, variables, type conversion and casting, Automatic Type Promotion in Expressions, Arrays, Operators, Control statements.

Introducing Classes : Class fundamentals, Declaring the objects, Assigning Object Reference Variables, Introducing Methods, Constructors, The this keyword, Garbage Collection, the finalize() Method.

A Closer Look at Methods and Classes : Overloading Methods, Using objects as Parameters, Returning Objects, Introducing Access control, Understanding static and final keywords, Nested and Inner Classes.

UNIT II **(12)**

Inheritance : Inheritance Basics, Using super, Creating multilevel Hierarchy, When Constructors are executed, Method Overriding, Dynamic Method Dispatch, Using Abstract Classes, using final with Inheritance.

Packages and Interfaces : Packages, Access Protection, Importing Packages, Interfaces, Default Interface Methods, Use static Methods in an Interface.

UNIT III **(12)**

String Handling : String class, StringBuffer class.

Exception Handling : Fundamentals, Exception types, Uncaught Exceptions, Using try and catch, Multiple catch Clauses, Nested try Statements, throw, throws, finally, Java's Built-in Exceptions, Creating Your Own Exception Subclasses.

Multithreaded Programming : The Java Threaded Model, The Main Thread, Creating a Thread, Creating Multiple Threads, Using isAlive() and join(), Thread Priorities, Synchronization, Inter Thread Communication.

UNIT IV **(12)**

I/O Basics : Streams, Byte streams, Character streams, Reading Console Input, Writing Console Output, Reading and Writing Files.

The Applet Class : Applet Basics, Applet Architecture, An Applet Skeleton, Simple Applet Display Methods, Requesting Repainting, The HTML APPLET Tag, Passing Parameters to Applets.

UNIT V **(12)**

Event Handling : Two Event Handling Mechanisms, The Delegation Event Model, Event Classes, The KeyEvent Class, Sources of Events, Event Listener Interfaces, Using The Delegation Event Model, Adapter Classes.

Introducing the AWT : Working with Windows, Graphics and Text, Using AWT Controls, Layout Managers and Menus.

LEARNING RESOURCES:

TEXT BOOK(s):

Java The Complete Reference 9th Edition, Herbert Schildt, Mc Graw Hill Education (India) Private Limited, New Delhi.

REFERENCE BOOK(s):

1. Java How to Program, Sixth Edition, H.M.Dietel and P.J.Dietel, Pearson Education/PHI.
2. Introduction to Java programming, By Y.Daniel Liang,Pearson Publication.