

AIT 211

OOP USING JAVA

3 (2+1)

Objective(s)

After completing the course the student shall be able to comprehend the art of programming and, in particular, the structure and meaning of basic Java programs, modify, compile, debug, and execute Java programs, design and build programs using java technology APIs

Unit I

Introduction to Java

Basics of Java programming, Data types, Variables, Operators, Control structures including selection, Looping, Java methods, Overloading, Math class, Arrays in java.

Unit II

Objects and Classes

Basics of objects and classes in java, Constructors, Finalizer, Visibility modifiers, Methods and objects, Inbuilt classes like String, Character, StringBuffer, File, this reference.

Unit III

Inheritance and Polymorphism

Inheritance in java, Super and sub class, Overriding, Object class, Polymorphism, Dynamic binding, Casting objects, Instance of operator, Abstract class, Interface in java, packages in java, util package.

Multithreading and Exception Handling

Multithreading in java, Thread life cycle and methods, Runnable interface, Thread synchronization, Exception handling with try-catch-finally

Unit IV

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, Applet and its life cycle, Introduction to swing.

Unit V

I/O Programming and JDBC

Text and Binary I/O, Classes for File Reading and Writing, Random Access Files, JDBC Introduction, Types of drivers, Callable Statement, Connection, Prepared Statement, Resultset, DatabaseMetaData, ResultSetMetaData

Reference Book(s)

1. Java Programming Language by Ken Arnold, James Gosling, David Holmes
2. The Complete Reference Java, Herbert Schildt: TMH, New Delhi
3. Black Book: Java Programming, DreamTech Publication, New Delhi
4. Head First Java by Kathy Sierra, Bert Bates
5. Thinking in Java By Bruce Eckel

Practical(s)

1. Writing, Compiling and Executing first java program.
2. Java program exercises for data types, operators.
3. Java program exercises for loop and decision structures.
4. Java program exercises for class, object, method, method and constructor overloading.
5. Java program exercises for build in classes and methods.
6. Java program exercises for Inheritance, Method overriding.
7. Java program exercises for Abstract class and Interface.
8. Java program exercises for Thread creation, Thread Methods.
9. Java program exercises for Thread synchronization.
10. Java program exercises for Exception Handling.
11. Java programming exercises for GUI and Layout Managers.
12. Java programming exercises for Event Delegation Model.
13. Java programming exercises for GUI controls like button, textbox, list, combobox etc.
14. Java programming exercises for File Handling.
15. Java programming exercises for JDBC.