



CSOE-004: Introduction to Object Oriented Programming

Course Objectives:

The objectives of this course are to cover:

- Programming in the Java programming language.
- Knowledge of object-oriented paradigm in the Java programming language.
- The use of Java in a variety of technologies and on different platforms.

Credits: 03

L-T-P-J: 3-1-0-0

Unit-1:

8 Hours

Introduction to JAVA: JAVA Evolution: Java History, Java Features, How Java Differs from C and C++, Java and Internet, Java and World Wide Web, Web Browsers, Hardware and Software Requirements, Java Support Systems, Java Environment.

Overview of JAVA Language: Introduction, Simple Java program, More of Java Statements, implementing a Java Program, Java Virtual Machine, Command Line Arguments, and Programming Style. Constants, Variables, and Data Types: Introduction, Constants, Variables, Data Types, Declaration of Variables, Giving Values to Variables, Scope of Variables, Symbolic Constants, Type Casting, Getting Values of Variables, Standard Default Values.

Unit-2:

8 Hours

Operators and Expressions: Introduction, Arithmetic Operators, Relational Operators Logical Operators, Assignment Operators, Increment and Decrement Operators, Conditional Operators, Bitwise Operators, Special Operators, Arithmetic Expressions, Evaluation of Expressions, Precedence of Arithmetic Operators, Type Conversion and Associativity, Mathematical Functions.

Decision Making and Branching: Introduction, Decision Making with if Statement, Simple if Statement, The if.....else Statement, Nesting of if.....Else Statements, The else if Ladder, The Switch Statement, Operator. Decision Making and Looping: Introduction. The while Statement, The do Statement, for Statement, Jumps in Loops Labeled Loops.

Unit-3:

8 Hours

Classes, Arrays, Strings and Vectors: Classes, Objects and Methods: Introduction, Defining a Class, Adding Variables, Adding Methods, Creating Objects, Accessing Class Members, Constructors, Methods Overloading, Static Members, Nesting of Methods, Inheritance: Extending a Class Overriding Methods, Final Variables and Methods, Finalizer methods, Abstract Methods and Classes, Visibility Control. Arrays, Strings and Vectors: Arrays, One-dimensional Arrays, Creating an Array, Two -Dimensional Arrays, Creating an Array, Two – dimensional Arrays, Strings, Vectors, Wrapper Classes.

Unit-4:

8 Hours

Interfaces, Packages, and Multithreaded Programming: Interfaces: Multiple Inheritance: Introduction, Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interface Variables. Packages: Putting Classes together: Introduction, Java API Packages, Using System Packages, Naming Conventions, Creating Packages, Accessing a Package, Using a Package, Adding a Class to a Package, Hiding Classes. Multithreaded Programming: Introduction, Creating Threads, Extending the Thread Class, Stopping and Blocking a thread, Life Cycle of a thread,



Unit-5:

8 Hours

Managing Exceptions, Applet Programming: Managing Errors and Exception: Introduction, Types of Exception Handling Code, Multiple Catch Statements, Using Finally Statement, Throwing Our Own Exceptions, Using Exceptions for Debugging. Applet Programming: Introduction, How Applets Differ from Applications, Preparing to Write Applets, Building Applet Code, Applet Life Cycle, Creating an Executable applet, Designing a Web Page, Applet Tag, Adding Applet to HTML File, running the Applet, More About HTML Tags, Displaying Numerical Values, Getting Input from the User.

Referential Books:

- Thomas Boutel, “CGI programming in C and Perl”, Addison – Wesley, 1996.
- Jefry Dwight et al, Using CGI, Second Edition, Prentice Hall, India, 1997.
- Patrick Naughton & Herbert Schildt, JAVA 2: The Complete Reference, THM, 1999.
- Schildt, “JAVA The Complete Reference”, 7th Edition.

Course Outcome:

Upon successful completion of, students will be able to:

- Summarize the strengths and weaknesses of Java programming and the basic concepts of object-oriented programming.
- Identify Java code utilities in applets, Java packages, and classes.
- Write Java code using advanced Java features.