

BSc (IT)

DSC-10: Object Oriented Programming Using Java (LTP::3:1:2)

6 Credits

Unit - I

Fundamentals of object-oriented programming, JAVA Evolution, Overview of JAVA Language. Constants, Variables, Data Types. Operators and Expressions, Arithmetic Expressions, Evaluation of Expressions, Precedence of Arithmetic Operators, Type Conversion and Associativity, Mathematical Functions. Decision Making and Branching, Decision Making and Looping, Jumps in Loops, Labelled Loops.

Unit -II

Classes, Objects and Methods, 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, Wrapper Classes.

Interfaces, Multiple Inheritance, Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interface Variables.

Unit - III

Packages: Putting Classes together, 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, Creating Threads, Extending the Thread Class, Stopping and Blocking a thread, Life Cycle of a thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the 'Runnable' Interface.

Managing Errors and Exception, Multiple Catch Statements, Using Finally Statement, Throwing Our Own Exceptions, Using Exceptions for Debugging.

Unit - IV

Applet Programming, Applet Life Cycle, Creating an Executable applet, Designing a Web Page, Applet Tag, Adding Applet to HTML File, running the Applet,

Graphics Programming, The Graphics Class, Lines and rectangles, circles, and Ellipses, Drawing Arcs, Drawing Polygons, Lines Graphs, Using Control Loops in Applets, Drawing Bar Charts.

Managing Input/Output Files in JAVA, Concept of Streams, Stream Classes, Byte Stream Classes, Character Stream Classes, Using Streams, Using the File Class, Input / Output Exceptions, Creation of Files, Reading / Writing Characters, Reading / Writing Bytes, Handling Primitive Data Types, Concatenating and Buffering Files, Interactive Input and output.

Text Books:

1. E. Balaguruswamy, "Programming with JAVA", A Primer, TMH, 1999.

Reference Books:

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