

BCA 306: Java Programming

Teaching Scheme

Lectures: 4 hrs/Week

Lab: 3 hrs/Week

Credits: 4

Examination Scheme

Class Test -12Marks

Teachers Assessment - 6Marks

Attendance – 12 Marks

End Semester Exam – 70 marks

Prerequisite: - BCA203 (C programming), BCA 251 (C Programming Lab), BCA 403 (Object Oriented Programming using C++), BCA 451 (Object Oriented Programming using C++ Lab)

Course Objectives:

1. To describe concepts of OOPS using Java.
2. To summarize the uses of packages in Java programming.
3. To implement string and exception handling concepts using Java.
4. To analyze concepts of strings and file handling, exception handling.
5. To understand the significance of multithreading and socket programming.
6. To design GUI application along with the database connectivity.


Deans Academics
Faculty of Computer Applications
Invertis University, Bareilly (UP)

Detailed Syllabus

UNIT I

Introduction: Features of the Java Language, Platform Independence, JVM, Byte-code, Operator, Data type, Variables, Robustness.

OOPS: Object, Class, Classifications, Methods & classes, Inheritance, Static and non Static methods, Overloading, Overriding of methods, Abstraction, Interface, Polymorphism.

UNIT II

Packages: Data Encapsulation, Concept of Package, Creating package, Importing packages, Child Packages.

Exception Handling: Exceptions & Errors, Types of Exception, Control Flow in Exceptions, Use of the try, catch, finally, throw, throws in Exception Handling. In-built and User Defined Exceptions, Checked and Unchecked Exceptions.

UNIT III

I/O, String Handling: Operation on String, Mutable & Immutable String, Tokenizing a String, Creating Strings using String Buffer.

I/O and File Handling: Bufferedreader class, InputStreamReader class, Scanner class, Creating File, Finding File Reading and Writing File (Doc File, Html File, a Text File).

Array and Loop: Defining an Array, Initializing & Accessing Array, Multi -Dimensional Array and Control Statements.

UNIT IV (10 Hours)

Multi Threading: Understanding Threads, Needs of Multi-Threaded Programming, Solution of Producer consumer problem by Multi Thread, Thread Life-Cycle, Thread Priorities, Synchronization of Thread.

Java Networking: Concept of client and Server, Introduction of TCP, Concept of Socket, Importance of Socket, Socket programming, communication between client and server.

UNIT V

GUI Application Development: Introduction to AWT, AWT controls Java Applet, Layout Managers, Menus, Images, Graphics, Event Handling, Swing, Containers, Panes, Frames, Dialogue boxes, working with image controls.

UNIT VI

JDBC: The connectivity Model, JDBC/ODBC Bridge, Java, SQL package, connectivity to remote database, navigating through multiple rows retrieved from a table/ multiple tables of a database.

Text and Reference Books:

1. The Complete Reference Internet, Margaret Levine Young, TMH, 1999.
2. The Complete Reference JAVA 2, Naughton Schildt, TMH, 5th Edition.
3. Programming in JAVA, E. Balagurusamy E, TMH, 3rd Edition, 2006.
4. Java Black book, Steven Helzner, Dreamtech, 2002

Course Outcomes:

After completing the course, students will be able to:

1. Understand concepts of OOPS.
2. Analyze the effect of using OOPS concepts.
3. Understand the communication between client and the server.
4. Understand the concept of multithreading on the single processor.
5. Start doing programming for the GUI applications.
6. Understand the connectivity process with the database server .