Branch: BCA	Semester-III
Subject Code: 3102	Lecture: 04 Credit: 04
Course Opted	Core Course - 8
Subject Title	JAVA PROGRAMMING

Course Objectives:

- To gain knowledge about basic Java language syntax and semantics.
- To write Java programs and use concepts such as variables, conditional and iterative execution methods etc.
- To understand the fundamentals of object-oriented programming in Java, including defining classes, objects, etc.
- To understand the principles of inheritance, packages and interfaces.
- To design and program stand-alone Java applications.
- To learn how to use exception handling in Java applications.

Course Outcomes:

- To teach Object-Oriented programming concepts, techniques, and applications using the Java programming language.
- Problem solving skills – to analyze real life problem, find and develop algorithmic steps to solve it and then implement these steps in JAVA.
- Experience with developing and debugging software in Java.
- To develop real life projects using database connectivity with JDBC.

Modules	Sr. No.	Topic and Details	No. of Lectures Assigned	Marks Weightage %
UNIT-I	1	**Introduction and Programming with java: Introduction to java:** Creation of java, Difference between java & C++. Java's Magic: Byte Code, JVM, Run time Environment, Just-in-time, Compiler, JDK, Buzzwords/Features, OOP Principles, Data Types & Operators, Simple Data Types, Variables, Declaring Variables, Dynamic Initialisation, Scope & Life time, Type conversion & Casting Incompatible Types. Arrays: one, Multi-dimensional, Arithmetic, Modulus Assignment, Increment & Decrement, Relational Boolean – Logical operators. Control Statements- All Control Statements, Jump Statement. Classes & Objects: Class Fundamentals- General form,Simple class, Declaring Objects, Assigning Object reference variables	5	10
	2	**Constructor & Methods:** Introduction to Methods, Constructor, Types of Constructors, This keyword, Garbage Collection, Finalise() method, A stack Class	4	8
UNIT-II	3	**Method Overloading :** Overloading Methods, Using Object as Parameters, Argument Passing, Returning Objects, Recursion, Understanding Static, Introducing to Final, Inner & Nested Classes, Inheritance & Method Overriding, Dynamic Method dispatch, Abstract Classes, Final With Inheritance	6	12

	4	**Special Features of java:**Interface& packages, Packages access Protection, Importing Package, Interface.	3	6
	5	**Exception Handling:** Fundamentals, Exception Types Uncaught Exception, Using try catch, Multiple Catch, Nested try, throw, throws, finally, java's Built-in- exception, creating own exception subclasses, chained exception, using exception	4	8
UNIT-III	6	**Threading:** Thread Model, Thread priorities, synchronization, Messaging, The thread class and the runnable interface. The main Thread, Creating a thread, Implementing Multi thread, using isAlive() & join().	5	10
	7	**I/O Applets:** The I/O Classes, I/O Basics, Streams, Byte Streams and character streams, Byte stream, classes and character stream classes, Byte Stream class, Buffered InputStream, BufferedOutputStream, ByteArrayInput, ByteArrayOutput, DataInput, Data Output, PrintStream, Character Stream Class, BufferedReader, BufferedWriter, InputStreamReader, OutputStreamWriter, PrintWriter, Reading Console Input, Writing Console output, Applet Initialisation and Termination, Init(), Start(), Paint(), Stop(), Destroy(), Overriding update(), Simple Applet Display Methods(), Repainting, Using Status window, The HTML Applet tag, Passing parameters to Applets.	7	14
UNIT-IV	8	**The Java Library:** String Handling- length(),equals(), charAt(), toString(), getchar(), compareTo(), indexOf(), lastIndexOf(), concat(), valueOf(), substring(), replace(), trim(), toUpperCase(), toLowerCase(), Networking- Networking Basics, Socket overview, Client/Server, Reserved Socket, Internet Addressing, DNS, Java & The Net, Networking classes and interfaces- InetAddress, Factory Methods, Instance Methods, TCP/IP client sockets, whois URL, Format URL connection, TCP/IP Server sockets, Datagrams, DatagramPacket, Datagram server and client, The Collections Framework, Collections Overview, Collections Interfaces, The collection Interface, The list Interface, Set Interface, Sorted Set Interface.	6	12
	9	**Basics of AWT and Swing:** Control fundamentals, Adding & Removing controls, Responding to controls, Using Buttons, ActionListener, itemsStateChanged(), Choice Control, Handling choice Lists, Using Lists, Handling Lists, Managing Scroll bar, Textfield, Using TextArea, Panels, Checkbox, Dialogs and frames, Using menus, Using the adapter class,LayOut Manager-Flow, Border Grid, Card Using Insets, Event Handling –Events, Event Sources, Event Listeners, Event Classes(In details)-	6	12
	10	**Database Connectivity:** Database connectivity with JDBC, Java Security.	4	8

Total	50	100

Text Book:

1. Herb Schildt, “Java 2 the Complete Reference J2se”, 5TH Edition , 2003.

References:

1. Jim Farley, William Crawford, David Flanagan,“Java Enterprise in a Nutshell: A Desktop Quick Reference”: (Nutshell Handbook).
2. Elliot B. Koffman, “Problem Solving with Java”, Temple University Ursula Wolz, College of New Jersey, Copyright 1999, 848 pp. ISBN 0201357437.
3. Jan Skansholm, “Java from the Beginning”, Chalmers University of Technology, Sweden, Copyright 2000, 540 pp. ISBN 0201398125.