

Branch: B.Sc.(IT)	Semester-III
Subject Code: 3102	Lecture: 04 Credit: 04
Course Opted	Core Course – 8
Subject Title	JAVA PROGRAMMING

Course Objectives:

- To make students aware of various OOP concepts and their implementations.
- To enable students to install and use various versions of JAVA & some of its editors.
- To enable students to write, compile, run & debug java programs using core java language.
- Implementation of various OOP entities like classes, objects, inheritance etc. using java.
- To learn JAVA dealing with GUI & IO devices.
- Learning advanced Java features like Generics, Multi-Threading, Autoboxing etc.

Course Outcomes:

- Basic knowledge of programming in JAVA.
- Experience with developing and debugging software in Java.
- Developing software skills for developing real world applications using Java Programming language.

Modules	Sr. No.	Topic and Details	No of Lectures Assigned	Marks Weightage %
UNIT - I	1	Introduction To Java History, Comparison with C++. Byte Code, JVM, Run time Environment, Just-in-time, Compiler, JDK, Buzzwords/Features, OOP Principles, Data Types & Operators, Variables, Dynamic Initialization, Type conversion & Casting. Arrays: One dimensional, multi-dimensional, Operators: Arithmetic, Relational, Boolean, Logical. Control Statements, Classes & Objects: Objects, The General Form of a Class, Declaring Objects, Assigning Object Reference Variables, Garbage Collection, The finalize() Method.	5	10
	2	Constructors Definition, Parameterized Constructors, The This Keyword: Instance Variable Hiding, A Stack Class, Overloading Constructors	3	6
UNIT - II	3	Method Overloading : Adding a Method to the Class, Returning a Value, Adding a Method That Takes Parameters, Recursion, Overloading Methods, Varargs: Variable-Length Arguments, Overloading Varargs Methods, Varargs and Ambiguity	3	6
	4	Inheritance Definition, Need of Inheritance, Types of Inheritance, Inheritance Basics: Base class/Super class, Derived /Sub class, Member Access and Inheritance, A Superclass Variable, Superclass methods, Multilevel Hierarchy, When Constructors Are Called.	4	8
	5	Method Overriding Definition, Dynamic Method Dispatch, Why Overridden Methods?, Applying Method Overriding, Using Final with Inheritance, Using Final to Prevent Overriding.	3	6

	6	Abstract Classes & Interfaces Abstract Classes, Interfaces, Defining an Interface, Implementing Interfaces, Nested Interfaces, Applying Interfaces, Variables in Interfaces, Interfaces can be extended, abstract class vs. interface.	4	8
UNIT - III	7	String Handling String Handling- length(), equals(), charAt(), toString(), getChar(), compareTo(), indexOf(), lastIndexOf(), concat(), valueOf(), substring(), replace(), trim(), toUpperCase(), toLowerCase().	3	6
	8	Java Exceptions 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.	3	6
	9	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().	3	6
UNIT -IV	10	Java I/O I/O: 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, ByteArrayInputStream, ByteArrayOutputStream, DataInput, Data Output, PrintStream, Character Stream Class, BufferedReader, BufferedWriter, InputStreamReader, OutputStreamWriter, PrintWriter, Reading Console Input, Writing Console output, I/O operations from a file using Reader & Writer classes, I/O operations from a file using InputStream & OutputStream classes.	4	8
	11	Applets Applet, Initialization 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.	4	8
	12	Networking- Networking Basics, Socket overview, Client/Server, Reserved Socket, Internet Addressing, DNS, Java & The Net, Networking classes and interfaces- InetAddress, TCP/IP client sockets, Format URL connection, TCP/IP Server sockets, Datagrams, DatagramPacket, Datagram server and client, The Collections Framework, Collections Interfaces, The list Interface, Set Interface, Sorted Set Interface.	4	8
	13	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,	4	8

		Border Grid, Card Using Insets, Event Handling – Events, Event Sources, Event Listeners, Event Classes		
	14	Database Connectivity: Database connectivity with JDBC, Java Security.	3	6
TOTAL			50	100

Text Book:

1. Herbert Schildt, “Java 2 the Complete Reference J2se”, 5th Edition , 2003.

Reference Books

1. The Complete Reference JAVA 2
2. Programming with Java A Primer, E. Balaguruswamy Tata McGraw Hill Companies.
3. Java Programming John P. Flynt Thomson 2nd.
4. Java Programming Language Ken Arnold Pearson.
5. Big Java, Cay Horstmann 2nd edition, Wiley India Edition.