JAVA PROGRAMMING

Credits: 4 **Semester : IV**

Subject Code: BS18036 **No. of Lecture Hours: 60**

Objective: To help the students understand the fundamentals of object-oriented programming. Emphasis is on learning important principles of software development and intends to provide practice in developing small-scale programs.

Outcome: Students will be able to
CO1: Write java programs and **differentiate** between object-oriented programming and Procedure-oriented programming.
CO2: Apply object-oriented programming features for solving a given problem.
CO3: Incorporate exception handling mechanism.
CO4: Implement Use of java standard API library to handle file operations.
CO5: Develop interactive programs using applet and swing

UNIT – I **12Hrs**

1.	**Object Oriented Programming:** Introduction, Object Oriented Paradigm	1
2.	Basic concepts	1
3.	Benefits of OOP, Applications of OOP	1
4.	Introduction to Java, , Features of Java,	1
5.	Simple Java Program, Java Program Structure	1
6.	Java Tokens, Java Statements, JVM	1
7.	Variables, Data types, Operators and Control statements	1
8.	Java Program structure, Simple Java program	1
9.	**Classes, Objects and Methods:** Defining Class, Adding Variables, Methods 2	
10.	Creating Objects, Accessing Class Members	1
11.	Constructors, Finalizer Methods	1

UNIT – II

12Hrs

1.	Method Overloading, Static Members, Nesting of Method	1
2.	Inheritance, Overriding Methods, Final Variables and Methods, Final Classes	2
3.	Abstract Methods and Classes ,Visibility Control	3
4.	Arrays, Strings and Vectors, Wrapper classes	
5.	**Interfaces:** Defining Interfaces , Extending and Implementing Interfaces	3
6.	Accessing Interface variables	
7.	Packages: Java API Packages, Using system Packages	2
8.	Naming Conventions, Creating Packages	
9.	Accessing a Package , Using a Package, Adding a Class to a Package	1

UNIT – III **12hrs**

1.	**Exception Handling:** Types of Errors, Exceptions	1
2.	Uncaught Exceptions, Using try and catch	2
3.	Multiple Catch Statements, Nested try statements , throw, throws and finally	2
4.	Java's Built in Exceptions, User Defined Exceptions	2
5.	**Multithreaded Programming:**Creating Threads, Extending the Thread Class, Stopping and Blocking a Thread,	2
6.	Life Cycle of a Thread	2
7.	Using Thread Methods , Thread Exceptions, Thread Priority, Synchronization	1

UNIT – IV **12Hrs**

1.	**Input/Output Files**: Introduction, Concept of Streams, Stream Classes, Byte Stream Classes	2
2.	Character Stream Classes, Using the File Class, Input-Output Exception	2
3.	Creation of Files, Bytes, Handling Primitive Data Types	2
4.	Random Access Files, Simple Input/Output	2
5.	**Applets**: Applet Class, Basics, Applet vs Application ,Life Cycle	2
6.	Applet Tag, Passing Parameters, A Simple Banner Applet	2

UNIT –V

12Hrs

1.	**Event and Event Handling:**Sources of Events	4
2.	**Event Classes:**Action Event, Mouse Event, Window Event, Item Event, Key Event	2
3.	Event Listeners,-Action listener, Mouse Listener, Mouse Motion Window Listener, Key Listener, Handling Events.	2
4.	**Swing Controls:**JLabel and ImageIcon, JButton,JRadioButton, JCheckbox, Table, JList, JToggleButton,	2
5.	JTree, JCombobox, JTextField, JOptionPane	2