**Programming in JAVA**

**BIT255CO**

**Year: II Semester: II**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Teaching Schedule  Hours/Week | | | Examination Scheme | | | | |
| Theor y | Tutorial | Practical | Internal  Assessment | | Final | | Total |
| 3 | 1 | 2 | Theory | Practical | Theory | Practical | 150 |
| 20 | 50 | 80 | - |

**Objective:**

The main objective of this course is to make students understand fundamentals of object-oriented programming in Java using Java SDK environment so that they can write programs in JAVA to solve problems.

**1. Introduction to Java [12 Hours]**

1.1 Overview of Object-oriented Programming in Java

1.2 JVM, Java environment, Java tools

1.3 Features of Java

1.4 Control Statements

1.5 Looping

1.6 Array

1.7 String and StringBuffer

1.8 Vector

1.9 Class and Objects

1.10 Inheritance

1.11 Polymorphism

1.12 Working with Collections

1.13 Interface and Packages

1.14 Exception Handling [try, catch, throw, user defined exception]

1.15 Multi-threaded Programming [life cycle, thread creation, thread synchronization]

**2. Applet Programming [2 hours]**

2.1 Introduction to Applet

2.2 Standard Applet Methods

2.3 Putting an Applet on a Web Page

2.4 Passing parameter to Applets

2.5 Comparison between Applet and Application

**3. GUI Programming [7 hours]**

3.1 AWT Vs. Swing

3.2 Using Swing Components

3.3 Using Automic Components [JLabel, JButton etc]

3.4 Using JFrame, JPanal, JTree and JTable

3.5 Event handling[Mouse driven, Keyboard driven and other]

**4. Java IO [5 hours]**

4.1 Working with Input/output APIs

4.2 Working with scanner class

4.3 Working with Files

4.4 Working with Object Serialization

**5. JDBC [4 hours]**

5.1 JDBC Basic

5.2 Different Types of Drivers

5.3 Setting up a database

5.4 Setting up a Connection

5.5 Retrieving Values from Result Sets

5.6 Deleting/Updating tables

5.7 Working with Statement and PreparedStatement

**6. Socket Programming [6 hours]**

6.1 Overview of Socket Programming

6.2 Introduction of APIs related to Socket Programming

6.3 Server Side Programming [TCP and UDP]

6.4 Client Side Programming [TCP and UDP]

6.5 A Sample Program

**7. Distributed Application [5 hours]**

7.1 Introduction to Distributed Objects

7.2 Overview of RMI

7.3 Rmi Architecture

7.4 Creating Distributed Application using RMI

**8. Overview of Servlet and JSP [4 Hours]**

8.1 Introduction to Servlet and JSP and its Architecture

8.2 Configuring Apache Tomcat to host Servlet/JSP files

8.3 Sample program of Servlet and JSP.

**Laboratory Works:**

There shall be lab exercises covering all features of above chapters.

**Reference Books:**

1. Cay S. Horstman, “Core Java Volume I & II”, PHI

2. Bruce Eckel, “Thinking in Java”, PHI

3. Herbert Schildt, “Java: The Complete Reference”, McGraw Hill

4. Java 2.0 by “Ivan Bayross”

5. Programming with java by: “E. BALAGURUSAMY” latest edition.