

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA IN INFORMATION TECHNOLOGY
SEMESTER: V

Subject Name: **Java Programming**

Sr. No.	Course content
1.	INTRODUCTION TO JAVA: 1.1 Advantages of Java 1.2 Features of Java 1.3 Data types, variables and array 1.4 Operators 1.5 Overview of control statements 1.6 Input and output in Java
2.	INTRODUCTION TO CLASSES. : 2.1 Class fundamentals 2.2 Declaring objects 2.3 Assigning object reference variables 2.4 Introducing methods 2.5 Constructors 2.6 The this keyword 2.7 Garbage collection 2.7.1 The finalize method 2.8 Wrapper class
3.	MORE ABOUT METHODS AND CLASSES : 3.1 Overloading methods 3.2 Using object as parameters 3.3 Returning objects 3.4 Recursion 3.5 Static and Final keyword 3.6 Nested and inner classes 3.7 Command line arguments
4.	INHERITANCE : 4.1 Inheritance basics 4.2 Super keyword 4.3 Creating multilevel hierarchy 4.4 Method overriding 4.5 Using abstract classes 4.6 Using final with inheritance
5.	PACKAGES AND INTERFACES. : 5.1 Packages (Defining package, CLASS PATH) 5.2 Access protection 5.3 Importing packages 5.4 Interfaces

6.	EXCEPTION HANDLING: 6.1 Exception – Handling fundamentals 6.2 Exception types 6.3 Using try and catch 6.4 Un caught exceptions 6.5 Multiple catch clauses 6.6 Nested try statements Throw, throws, finally 6.7 Creating your own exception sub classes
7.	MULTITHREDED PROGRAMMING: 7.1 The Java thread model 7.2 The main thread 7.3 Creating a thread 7.4 Creating multiple threads. 7.5 Using alive() & join() 7.6 Thread priorities 7.7 Synchronization 7.8 Inter thread communication 7.9 Suspending, resuming, stopping threads
8.	STRING HANDLING: 8.1 The string constructors 8.2 String length 8.3 Special string operation 8.4 Character Extraction 8.5 String comparison 8.6 Searching strings 8.7 Modifying a string 8.8 Using valueOf() 8.9 String buffer. <ul style="list-style-type: none"> • Give the overview of Vector Class
9.	APPLETS AND APPLICATIONS: 9.1 The applet class 9.2 Applets and HTML (The applet Tag) 9.3 Life cycles of an applets. (Init(), start, stop, destroy method) 9.4 Graphics class Drawstring, drawline, drawrect, fillrect, clearrect, fillroundrect, drawoval) 9.5 Painting the applet Update, paint, repaint method 9.6 Passing parameters to applets getparameter() method
10.	USING AWT IN APPLICATION: 10.1.1 The AWT classes <ul style="list-style-type: none"> 10.1.1 Layout Managers <ul style="list-style-type: none"> 10.1.1.1 Flow Layout 10.1.1.2 Grid Layout 10.1.1.3 Border Layout 10.1.1.4 Card Layout 10.1.2 Containers <ul style="list-style-type: none"> 10.1.2.1 Panel & Canvas 10.2 Window fundamentals 10.3 The frame class

10.4 The dialog class
10.5 Controls: Textbox, push button, label

Laboratory Experiences:

Students should write programmes on the basis of prescribed curriculum of this Courses (minimum 20 programmes)

It should include the followings:

1. Class & Object related programs.
2. Programs for Constructors, this keyword finalizes method.
3. Programs by using Final keyword, and static keyword
4. Programming for Command Line Arguments.
5. Programs for Array, Inner class and Nested class
6. Using Inheritance which also enhance the Super & This keyword
7. Abstract class and use of Final keyword in Inheritance
8. Creating Package, and the scope of data in packages
9. Importing Packages
10. Programs using Interface, Creating Multiple Inheritance Using Interface.
11. Exception Handling using pre-defined Exception Class.
12. Creating User –defined Exception class.
13. Multi-Threading Programming
14. Programs for I/O stream class, Reading the data from Console Input etc.
15. String Handling Programs
16. Use of Vector Class
17. Creating Applet
18. Event Handling Programs.
19. Programs for the applet using AWT classes, Frame and File Dialog.
20. Programs for the applet using Layout and Menus.

Note :

Number of programs for any topics can vary, depends on the weightage of the topic.

Reference Books:

1. Complete Reference Java 2, Herbert Schildt, TMH.
2. Java programming , E.Balagurusamy, TMH.
3. Java Programming, Sachin Malhotra, Saurabh Choudhary, Oxford.
4. Programming with Java, M. P. Bhavsar, S.A. Patekar, Pearson.
5. Introduction to Java Programming 7th ed., Y. Daniel Liang, Pearson.
6. Java For programmers, Paul J. Deitel & Harvey M. Deitel , Pearson.
7. Teach yourself Java 2 in 21 Days, Rogers Cadenhead, Laura Lemay, SAMS.