

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B. E. SEMESTER: V**  
**INFORMATION TECHNOLOGY**

Subject Name: **Object Oriented Programming with Java**

<b>Sr. No.</b>	<b>Course content</b>
1.	<b>Introduction to Java :</b> Basics of Java programming, Data types, Variables, Operators, Control structures including selection, Looping, Java methods, Overloading, Math class, Arrays in Java.
2.	<b>Objects and Classes :</b> Basics of objects and classes in Java, Constructors, Finalizer, Visibility modifiers, Methods and objects, Inbuilt classes like String, Character, StringBuffer, File this reference.
3.	<b>Inheritance and Polymorphism :</b> Inheritance in Java, Super and sub class, Overriding, Object class, Polymorphism, Dynamic binding, Generic Programming, Casting objects, Instance of operator, Abstract class, Interface in Java, Package in Java, UTIL package.
4.	<b>Event and GUI programming :</b> Event handling in Java, Event types, Mouse and key events, GUI Basics, Panels, Frames, Layout managers: Flow Layout, Border Layout, Grid Layout, GUI components like buttons, Check boxes, Radio buttons, Labels, Text fields, Text areas, Combo boxes, Lists, Scroll bars, Sliders, Windows, Menus, Dialog box, Applet and its life cycle, Introduction to swing.
5.	<b>I/O programming :</b> Text and Binary I/O, Binary I/O classes, Object I/O, Random access files.
6.	Multithreading in Java, Thread life cycle and methods, Runnable interface, Thread synchronization, Exception handling with try-catch-finally, Collections in Java, Introduction to JavaBeans and Network Programming.

**Reference Books:**

1. Introduction to Java Programming (Comprehensive Version), Daniel Liang, Seventh Edition, Pearson.
2. Programming in Java, Sachin Malhotra & Saurabh Chaudhary, Oxford University Press.
3. Murach's Beginning Java 2, Doug Lowe, Joel Murach and Andrea Steelman, SPD
4. Core Java Volume-I Fundamentals, Eight Edition, Horstmann & Cornell, Pearson Education.
5. The Complete Reference, Java 2 ( Fourth Edition ), Herbert Schild, TMH.
6. Java Programming, D. S. Malik, Cengage Learning.
7. Big Java, 3<sup>rd</sup> Ed., Horstmann, Wiley-India.
8. Head First Java, Katy Sierra & Bert Bates, SPD (O'Reilly).