

Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Sessional	Final Exam	Total
COM-403	Object oriented Programming using Java	PCC	4	3	1	0	50	100	150

**Course Outcomes:**

At the end of the course the student will be able to	
CO1	Appreciate the foundational data structures in Java.
CO2	Apply object-oriented decomposition to model real-world scenarios and applications through objects and classes.
CO3	Appreciate advanced features in Java and their applications.
CO4	Assimilate and implement Event and GUI based Programming model in Java.
CO5	Demonstrate proficiency in advanced features in Java like IO handling and Multithreading.

**Detailed Syllabus****Section-A**

**Unit 1:** Introduction to Java: Basics of Java programming, Data types, Variables, Operators, Control structures including selection, Looping, Java methods, Overloading, Math class, Arrays in java.

**(5Hrs)**

**Unit 2:** Objects and Classes: Basics of objects and classes in java, Constructors, Finalizer, Visibility modifiers, Methods and objects, Inbuilt classes like String, Character, String Buffer, File, this reference.

**(10Hrs)**

**Unit 3:** Inheritance and Polymorphism: Inheritance in java, Super and subclass, Overriding, Object class, Polymorphism, Dynamic binding, Generic programming, Casting objects, Instance of operator, Abstract class, Interface in java, Package in java, UTIL package.

**(10Hrs)****Section-B**

**Unit 4:** Event and GUI programming: 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.

**(12 Hrs)**

**Unit 5:** I/O programming and Multithreading in java: Text and Binary I/O, Binary I/O classes, Object I/O, Random Access Files, Thread life cycle and methods, Runnable interface, Thread synchronization, Exception handling with try-catch-finally, Collections in java, Introduction to JavaBeans and Network Programming.

**(12 Hrs)****Text Books**

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	JAVA: THE COMPLETE REFERENCE	Herbert Schildt	McGraw Hill Education	12 <sup>th</sup> (2022)
2	Object Oriented Programming in Java	Rick Halterman	Southern Adventist University	1 <sup>st</sup> (2008)

**Reference Books**

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Java 8 Programming Black Book	D.T. Editorial Services	Dreamtech Press	6 <sup>th</sup> (2015)