Object Oriented Programming using Java

UNITS	COURSE CONTENT	CONTACT HOURS
1	**Introduction to Java and OOP:** Java basics, language features, platform independence, object oriented paradigm vs. procedural, history and overview of Java, basic Java syntax (data types, variables, operators, control flow)	4L
2	**Classes and Objects:** Defining classes, constructors, methods, static members, access modifiers, encapsulation, UML diagrams, passing objects as parameters	5L
3	**Inheritance and Polymorphism:** Inheritance (single, multiple via interfaces), use of 'super', overriding/overloading, abstract classes, interfaces, dynamic method dispatch, polymorphism	6L
4	**Packages and Exception Handling:** Packages, import statements, package structure, exception handling (try, catch, finally, throw, throws), checked vs unchecked exceptions, custom exceptions	4L
5	**Arrays, Collections, and Generics:** Arrays (single/multi-dimensional), ArrayList, LinkedList, HashMap, generics and parameterized types, iterators	4L
6	**Multithreading and File I/O:** Thread lifecycle, synchronization, thread priority, inter-thread communication, file handling (streams, file input/output), serializing objects	6L
7	**GUI Programming and Applications:** Swing and AWT, GUI components, event handling, applets vs applications, GUI design principles, graphics and multimedia	6L