**23MX23 OBJECT ORIENTED PROGRAMMING USING JAVA**

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| **CO** | **Statement** |
| 23MX23.1 | Comprehend object oriented concepts and fundamentals of Java for problem solving. |
| 23MX23.2 | Write applications using Object Oriented features with proper exception handling mechanisms. |
| 23MX23.3 | Write programs using streams and multithreading. |
| 23MX23.4 | Design and develop applications with user interfacing, Collections framework and database connectivity. |

**OBJECT ORIENTATION:** Object Orientation Programming - Basic Concepts - Abstraction – Classes and Objects – Encapsulation - Inheritance – Polymorphism - **JAVA FUNDAMENTALS**: Features of Java – Java Development Environment – Bytecode - Data types- Variables -Operators – Expressions – Functions – Static Members - Arrays - Strings.                   (11)

**INHERITANCE:** Inheritance – Types - Access rules, super – final – Abstract classes – Inner classes **POLYMORPHISM**: Static binding – Dynamic binding – Method overloading - Runtime Polymorphism. Package: Defining, Creating and Accessing a Package, Understanding CLASSPATH, Importing package -  Interface:  Create – Implement. **EXCEPTION HANDLING**: Exception - Types – try and catch - Multiple catch - Nested try – throw - throws – finally - User defined exception.                   (12)

**INPUT / OUTPUT:** Stream classes: Byte – Character - File class - File operations - Console class – Serialization – Garbage Collection. **MULTITHREADING**:  Thread -based multitasking - Process-based multitasking - Java thread model - Creating threads - Thread priorities - Synchronization - Inter thread communication.                                                                                                                 (10)

**EVENT DRIVEN PROGRAMMING:** Basics - Applets Vs Applications – AWT: Containers, Components, Layout Managers – Event handling – Event Delegation model. **COLLECTIONS FRAMEWORK:** Collection: Interface – Classes – Generics. **JDBC:** JDBC Drivers, JDBC API, Executing statements, prepared statements and callable statements, Design and development of database applications.             (12)

**Total L: 45**

**REFERENCES:**

1. Herbert Schildt, "JAVA - The Complete Reference", 12th Edition, Tata McGraw Hill, 2021.
2. Cay S Horstmann, “Core Java Volume I: Fundamentals”, 12th Edition, Oracle Press, 2021.
3. Cay S Horstmann, “Core Java Volume II: Advanced Features”, 12th Edition, Oracle Press, 2022.
4. Deitel and Deitel, “JAVA - How to Program”, 11th Edition, Prentice Hall International Inc, 2017.

5. Daniel Liang, Pearson, “Introduction to JAVA Programming, 7th Edition, Tata McGraw Hill, 2017.