21CSE03	OBJECT ORIENTED PROGRAMMING	L	T	P	C
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Course Objectives

Students undergoing this course are able to
- To understand Object Oriented Programming concepts and basic characteristics of Java
- To know the principles of packages, inheritance and interfaces
- To define exceptions and use I/O streams
- To develop a java application with threads and generics classes

UNIT I	INTRODUCTION TO OOP AND JAVA FUNDAMENTALS	10 Hours

Object Oriented Programming - Abstraction – objects and classes - Encapsulation- Inheritance - Polymorphism- OOP in Java – Characteristics of Java – The Java Environment - Java Source File -Structure – Compilation. Fundamental Programming Structures in Java – Defining classes in Java – Constructors, Methods -Access specifiers - Static Members - Comments, Data Types, Variables, Operators, Control Flow, Arrays , Packages - JavaDoc comments.

UNIT II	INHERITANCE AND INTERFACES	9 Hours

Inheritance – Super classes- sub classes –Protected members – constructors in sub classes- the Object class – abstract classes and methods- final methods and classes – Interfaces – Defining an Interface, Implementing Interface, differences between Classes and Interfaces and Extending Interfaces - Object Cloning -Inner Classes, Array Lists - Strings

UNIT III	I/O	8 Hours

Input / Output Basics – Streams – Byte streams and Character streams – Reading and Writing Console – Reading and Writing Files

UNIT IV	MULTITHREADING	9 Hours

Differences between Multi-threading and Multitasking, Thread Life Cycle, Creating Threads, Synchronizing Threads, Inter-Thread Communication, Daemon Threads, Thread groups.

UNIT V	EXCEPTION HANDLING AND GENERIC PROGRAMMING	9 Hours

Exceptions - Exception Hierarchy - Throwing and Catching Exceptions – Built-in Exceptions, creating own Exceptions, Stack Trace Elements. Generic Programming – Generic classes – Generic Methods – Bounded Types – Restrictions and Limitations.

UNIT VI	CASE STUDY	

Case study on GUI Programming

Course Outcomes:

Upon completion of the course, students will be able to

- Develop Java programs using OOP principles

- Develop Java programs with the concepts inheritance and interfaces
- Build Java applications using exceptions, I/O streams and threads

Text books:

1. Herbert Schildt, "Java The complete reference", 8th Edition, McGraw Hill Education, 2011.

2. Cay S. Horstmann, Gary cornell, "Core Java Volume –I Fundamentals", 9th Edition, Prentice Hall, 2013.

Reference Books:

1. Paul Deitel, Harvey Deitel, "Java SE 8 for programmers", 3rd Edition, Pearson, 2015.

2. Steven Holzner, "Java 2 Black book", Dream tech press, 2011.

3. Timothy Budd, "Understanding Object-oriented programming with Java", UpdatedEdition, Pearson Education, 2000.