# 20CS31O4 - OBJECT ORIENTED PROGRAMMING THROUGH JAVA

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| Course Category: | Open Elective | Credits: | 3 |
| Course Type: | Theory | Lecture-Tutorial-Practical: | 3-0-0 |
| Pre-requisite: | Basic knowledge of programming. | Sessional Evaluation:  Univ. Exam Evaluation:  Total Marks: | 40  60  100 |

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| Course Objectives: | * Acquire knowledge on basics of Java * Learn the fundamental constructs of string handling functions in Java * Gain knowledge of using inheritance and packages * Explore the knowledge to create Graphical User Interfaces by using event handling mechanisms. * Learn the exception handling mechanisms. | |
| Course Outcomes | Upon successful completion of the course, the students will be able to: | |
| CO1 | Understand the basic concepts of Java and control statements. |
| CO2 | Acquire the knowledge of Classes and Methods |
| CO3 | Conceptualize the techniques of inheritance and String handling functions. |
| CO4 | Understand Interfaces and packages in java. |
| CO5 | Know the Exception Handling mechanisms and thread Programs. |
| CO6 | Understand the concept of Event Handling mechanisms and its applicability. |
| Course Content | UNIT-I  **Java Basics:** Buzz words, Data types, Variables and Arrays  **Operators:**Arithmetic, Bitwise, Relational, Boolean, Assignment, Ternary, Precedence and Associativity.  **Control statements:** Selection, Iteration and Jump statements  UNIT-II  **Classes:** Fundamentals, Assigning Object Reference Variables, Constructors, Garbage collection.  **Methods:** Overloading of Methods, Passing Objects as Parameters, Argument Passing, Returning Objects, Recursion, Access Control, Static, Final, Variable-length Arguments.  UNIT-III  **String Handling:** Constructors, length(), Special String Operations, Character Extraction, String Comparison – equals(), equalsIgnoreCase(), startsWith(), endsWith(), Deep Vs Shallow comparisons, String Buffer – constructors, length(), capacity(), reverse() and replace().  **Inheritance:** Basics, use of super keyword, Method overriding, Dynamic method dispatch, Using final with Inheritance.  UNIT-IV  **Interfaces:** Definitions and Implementations, Nested and Applying Interfaces, Variables in interfaces, Extending interfaces, Default and Static Interface Methods.  **Packages:** Basics, Member Access, Importing Packages.  UNIT-V  **Exception Handling:** Fundamentals, Types, Uncaught Exceptions, Usage of try and catch clauses, Multiple catch clauses, throw, throws and finally keywords.  UNIT-VI  **Event Handling:** Delegation Event Model, Event Classes, KeyEvent Class, Listener Interfaces, Handling Mouse Events, usage of delegation model, Adapter Classes, Inner Classes. | |
| Text Books &  References  Books | **TEXT BOOKS:**   1. Java: The Complete Reference, 10th Edition, Herbert Schildt TMH.   **REFERENCE BOOKS:**   1. Understanding Object-oriented Programming with Java, Timothy Budd, Addison Wesley. 2. Object-Oriented Programming and Java, Danny Poo, Derek Kiong, Swarnalatha Ashok, Second Edition, Springer. 3. Object-Oriented Programming using Java, Simon Kendal, Simon Kendal &Ventus Publication Aps. | |
| E-Resources | 1. <https://nptel.ac.in/courses> 2. <https://freevideolectures.com/university/iitm> | |