# 20CS31O4 - OBJECT ORIENTED PROGRAMMING THROUGH JAVA

|  |  |  |  |
| --- | --- | --- | --- |
| 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: | 4060100 |

|  |  |
| --- | --- |
| 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 statementsUNIT-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 &ReferencesBooks | **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>
 |