**19CS41O3 - JAVA PROGRAMMING**

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| **Course Category:** | Open Elective | **Credits:** | 3 |
| **Course Type:** | Theory | **Lecture-Tutorial-Practical:** | 3-0-0 |
| **Pre-requisite:** | Require the fundamental concepts of any programming and basic analytical capabilities | **Sessional :** | 40  60  100 |

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| **Course**  **Objectives:** | Students undergoing this course are expected to understand:   * To learn the fundamentals of building blocks and supporting exposure. * To study the development of programs using procedural programming methodologies * To identify various software development techniques that imposes a hierarchical structure on the design of the programs. * To learn the principles of object-oriented programming (OOP) techniques based on classes and objects. * To explore the environments of Integrated Development Environment (IDE), Eclipse and other tools to debug the programs |

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| **Course Outcomes** | Upon successful completion of the course, the students will be able to: | |
| CO1 | Understand the basics of Java including package concepts. |
| CO2 | Learn various I/O classes and supporting interfaces to develop simple programs |
| CO3 | Study the concept of exceptions and database connectivity to explore the quality improvement in various applications |
| CO4 | Identify various thread classes including applet class and implement the same on design and development |
| CO5 | Examine the role of event handling mechanisms and its applicability |
| CO6 | Study various AWT controls and buttons which are used to develop smart user interfaces |
| **Course Content** | **UNIT-I**  **OVERVIEW OF JAVA:** Object Oriented Programming Byte Code Concept, Java Buzzwords, A First Simple Program, Data Types, Variables and Arrays, primitive wrapper classes, Operators, Control Statements, Classes and Methods, Inheritance.  **PACKAGES AND INTERFACE:** Packages, Access Protection, Importing Packages  **UNIT-II**  **INPUT/OUTPUT:** The Java I/O Classes and Interface, File, Standard Streams – System.In, System.Out, System.Err - Their Purpose and Usage, The Byte Streams - Input Stream, Output Stream, File Input Stream, File Output Stream, Print Stream, The Character Streams – Reader, Writer, File Reader, File Writer, Buffered Reader, Buffered Writer, Printwriter, Serialization – Use of Object Input Stream and Object Output Stream.  **UNIT-III**  **EXCEPTION HANDLING:** Exception Handling Fundamentals, Exception Types, Using Try and Catch, Multiple Catch Clauses, Nested Try Statements, Throw, Throws, Finally Creating Own Exception Subclass. | |
|  | **DATA BASES:** Data Bases Introduced, Jdbc: The Java Database Connectivity, Jdbc Explored.  **UNIT-IV**  **MULTITHREADED PROGRAMMING:** The Java Thread Model, Creating Thread, Creating Multiple Threads, Synchronization, Interthread Communication.  **THE APPLET CLASS:** Applet Fundamentals, Applet Basics, Applet Architecture, An Applet Skeleton, Simple Applet Display Methods, Requesting Repainting, Passing Parameters to Applets.  **UNIT-V**  **EVENT HANDLING:** Two Event Handling Mechanisms, The Event Delegation Modes, Event Classes (ActionEvent, AdjustmentEvent, MouseEvent, WindowEvent, KeyEvent, TextEvent) Sources Of Events, Event Listener Interface (ActionListener, AdjustmentListener, MouseListener, MouseMotionListener, Keylisten, WindowListener, TextListener), Adapter Classes, Inner Classes.  **UNIT-VI**  **INTRODUCTION TO AWT:** Working with Windows, Controls, Layout Managers, Awt Classes, Window Fundamentals, Working with Frame Windows, creating a Frame window From Applet, Controls, Labels, Using Buttons, Understanding Layout Managers, Menu Bars and Menus, Dialog Boxes, File Dialog. | |
| **Text Books & References Books** | **TEXT BOOKS**  1.Java 7 The Complete Reference, 7th Edition Herbert Schildt.  **REFERENCE BOOKS**  1.Steven Holzner, “Java 2 Programming Black Book”, DreamTech, New Delhi, reprint: 2005.  2.Pratik Patel & KarlMoss, “Java database programming with JDBC” DreamTech, New Delhi, second edition, 2000 | |
| **e-Resources** | 1.<https://nptel.ac.in/courses>  2.<https://freevideolectures.com/university/iitm> | |