17CS41O4–JAVA PROGRAMMING

(Common to ECE, EEE, CE and ME)

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| **Course Category:** | Open Elective | **Credits:** | 3 |
| **Course Type:** | Theory | **Lecture – Tutorial – Practical:** | 2-2-0 |
| **Prerequisite:** | Require the fundamental concepts of any programming and basic analytical capabilities | **Sessional Evaluation:****Univ.Exam Evaluation:****Total Marks:** | 4060100 |
| **Course Objectives** | * To learn the fundamentals of building blocks and supporting exposure.
* To study the development of programs using procedural programmingmethodologies
* To identify various software development techniques that imposes ahierarchical 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 DevelopmentEnvironment (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 | Understandthe 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 variousAWT controls and buttons which are used to develop smart user interfaces |
| **Course Content** | UNIT-IOVERVIEW 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 PackagesUNIT-IIINPUT/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-IIIEXCEPTION 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-IVMULTITHREADED 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-VEVENT 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, ouseMotionListener, Keylisten,  WindowListener, TextListener), Adapter Classes,  Inner Classes.UNIT-VIINTRODUCTION 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 and References:** | **Text Books:**1. Java 7 The Complete Reference, 7th Edition [Herbert Schildt](http://www.amazon.com/Herbert-Schildt/e/B001H6PSMG/ref%3Dntt_athr_dp_pel_1).

**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.
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| **E-Resources** | 1. [**https://nptel.ac.in/courses**](https://nptel.ac.in/courses)
2. [**https://freevideolectures.com/university/iitm**](https://freevideolectures.com/university/iitm)
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