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Course Code: **BEEDCS502R01**

Semester: V

JAVA PROGRAMMING
(Common to EEE & EIE)

Course Objective:

To enable the learners develop Java console applications and applets using AWT controls for front-end design & database connections for back-end access.

UNIT – I **15 Periods**

Introduction to Object Oriented Programming

Introduction to Object Oriented Programming - Genesis of Java - Overview of Java - Data types, Variables and Arrays - Operators – Control Statements - Introducing Classes - Methods and Classes - Overloading - Understanding Static, Final - Nested and Inner Classes - String Class - Command Line Arguments - Inheritance - Packages and Interfaces - Exception Handling.

UNIT – II **15 Periods**

Multithreading and Event Handling

Multithreaded Programming - Java Thread Model - Creating Multiple Threads - Thread Priorities - Synchronization - Inter Thread communication - Suspending, Resuming and Stopping Threads - Obtaining a thread's state – I/O Basics – Reading & Writing Console Input – Print Writer Class-Reading and Writing files – Automatic closing of files - Applets - Fundamentals - Applet Class -Applet Architecture- Applet Skeleton – Applet display methods – HTML Applet tags-Passing parameters to Applets - Event Handling - Event Classes – Key event class - Event Listener Interfaces – Delegation Event Model - Adapter Classes - Inner Classes.

UNIT – III **15 Periods**

Abstract Windowing Tool kit, String handling and Networking basics

AWT - Window Fundamentals - Working with Frame Windows, Graphics, Colors and Fonts - Using AWT Controls, Layout Managers and Menus – Control Fundamentals - Understanding Layout Managers. Java Library - String handling - String Operation, Comparison, Searching, Modifying - String Buffer- Networking basics-Networking classes and interfaces-Inet4 and Inet6 address-TCP/IP client & server sockets - URL connection and class-cookies-data grams.

UNIT – IV **15 Periods**

JAVA Database Programming

Java Database Connectivity-Database Systems – an Introduction-Structured Query Language-Installing and setting up JDBC - Basic JDBC Programming concepts - Populating a database-Executing Queries - Scrollable and Updateable Result Sets.

TEXT BOOKS

1. Herbert Schildt*, "The Complete Reference Java 2",* 9th Edition, Tata McGraw Hill Edition, 2014.
2. Cay S. Horstmann & Gary Cornell*, Core Java Volume II – Advanced Features,* 8th Edition, Prentice Hall, 2008.

REFERENCE

1. Harvey M. Deitel, Paul J. Deitel*, JAVA: How to Program,* 7th Edition, Deitel & Associates Inc., 2006.

ONLINE MATERIALS

1. NPTEL – http://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-092-introduction-to-programming-in-java-january-iap-2010/lecture-notes/
2. NPTEL – http://www.youtube.com/watch?v=uUhOEj4z8Fo
3. NPTEL – http://www.youtube.com/watch?v=3uxp7mqUIfk
4. NPTEL – *www.nptelvideos.com/java/java_video_lectures_tutorials.php*

UNIT-WISE LEARNING OUTCOMES

Upon successful completion of each unit, the learner will be able to:

Unit I	• Develop programs on Inheritance, polymorphism, packages, interfaces and exception handling.
Unit II	• Construct programs on Multi-Threading, file handling and develop their own applets with the support of event handling mechanisms.
Unit III	• Describe AWT components, Graphics class, String class, networking basics and apply these concepts to writing programs.
Unit IV	• Create a database and perform database operations through JDBC-ODBC connectivity.

COURSE LEARNING OUTCOMES

Upon successful completion of this course, the learner will be able to

- Develop applications using I/O Streams, threads, Collection classes
- Design user interface and handle events using applets and AWT controls
- Design front end and connect to a database using JDBC
- Create applications to establish communication using Sockets