ADVANCED JAVA

Course Code: IS45	**Credits: 3:0:0**
Pre – requisites: Nil	**Contact Hours: 42L**
Course Coordinator: Dr. Sumana M	

Course Content

Unit I

Java Basics : Classes, Object, Constructors, Method overloading, Understanding Static, final, Inheritance- Super, Method Overriding, Abstract Classes, Using Final. Packages and Interfaces- Defining, Implementing . Access Protection. Exception Handling- try-catch, throw, throws, finally.

Unit II

String Handling: String Constructors, String Length, String Operations, changing case of characters, joining strings, string methods, Character Extraction, Searching Strings, Modifying Strings, Data conversions, StringBuffer.

Type wrappers, Autoboxing

Collections: Collection Interfaces, Collection classes, Accessing a collection via an Iterator.

Unit III

Storing user defined classes in Collections, Working with Maps, Comparators

Generics<T>: Introduction to Java Generics, Implementing Generics

Lambda Expressions: Fundamentals, Functional Interfaces, block lambda expressions.

Multithreaded Programming : The Java Thread Model, The main thread, Creating a thread, Creating multiple threads, Using isAlive() and join()

Unit IV

Introducing Swing – The Swing packages, Event handling, Exploring Swing
Working with Databases – JDBC Drivers and Architecture, Accessing Databases, The Customers GUI Example

Unit V

Java Servlets – Introduction, Servlet API and Life Cycle, Working with Servlets
Java Server Pages – Introduction to JSP, Getting started with JSP

Course Outcomes (COs):

At the end of the course, the student will be able to:

CO1: Write applications using basic java concepts. (PO - 1, 2, 3, 4, 5 & PSO - 3)

CO2: Write applications using Strings, type wrappers and Collection classes (PO - 1, 2, 3, 4, 5 & PSO - 3)

CO3: Implement applications using Maps, Generics, Lambda and multithreading concepts (PO 1, 2, 3, 4, 5- & PSO - 3)

CO4: Develop applications using Swing and JDBC (PO 1, 2, 3, 4, 5, 9, 10 & PSO - 3)

CO5: Develop JavaEE application using Servlets or JSP (PO -1, 2, 3, 4, 5, 9, 10 & PSO - 3)

Suggested Learning Resources:

Text Books:

1. Herbert Schildt, Java:the Complete Reference, 12th edition, McGrawHill, , 2023 .

2. Sharanam Shah, Vaishali Shah, JavaEE 7 for Beginners, Shroff Publishers, 2018.

References:

Christian Ullenboom, Java: The Comprehensive Guide, Shroff Publishers, October, 2022

Web links and Video Lectures (e-Resources):

- https://nptel.ac.in/courses/106105191

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- mini - project