Course Title: Java Programming Fundamentals

Course Duration: 2 Months

Course Description:

This Java programming course is designed for beginners and those with some programming experience. Students will learn the fundamental concepts of Java, object-oriented programming (OOP), and practical application development. By the end of the course, students will be able to create Java applications and be well-prepared for more advanced Java programming courses.

Weeks 1-2: Introduction to Java (8 hours)

Understanding Java and its significance

Setting up the development environment (IDE)

Writing and running a simple Java program

Basic syntax and data types

Variables and constants

Weeks 3-4: Control Flow (8 hours)

Conditional statements (if, else if, switch)

Looping constructs (for, while, do-while)

Handling user input

Exception handling (try-catch blocks)

Weeks 5-6: Object-Oriented Programming (OOP) (8 hours)

Introduction to OOP concepts (classes and objects)

Creating and using classes and objects

Constructors and methods

Inheritance and polymorphism

Weeks 7-8: Data Structures and Collections (8 hours)

Arrays and ArrayLists

Linked lists and other collection types

Iterating through collections

Understanding the Collections framework

Weeks 9-10: File Handling and Input/Output (I/O) (8 hours)

Reading and writing text files

Handling exceptions in file operations

Introduction to streams (FileInputStream, FileOutputStream)

Serialization and deserialization

Weeks 11-12: GUI Programming (8 hours)

Introduction to Swing and GUI components

Creating GUI applications

Event handling and listeners

Building a simple graphical application

Weeks 13-14: Advanced Java Concepts (8 hours)

Multithreading and concurrency

Networking and socket programming

Introduction to JDBC (Java Database Connectivity)

Weeks 15-16: Final Project (8 hours)

Students work on a final Java project that demonstrates their understanding of the topics covered in the course.

Guidance and feedback from instructors.

Presentation of final projects.

Assessment and Evaluation:

Regular quizzes and assignments.

Final project evaluation.

Attendance and class participation.