

Virginia Western Community College

ITP220

Java Programming II

Prerequisites

ITP 120 Co-requisite: ITD 130 or instructor's permission

VCCS Course Description

Instructs in *intermediate* Object-Oriented Programming techniques using the Java programming language. Explores the Java Language Specification and the Java Class Library in more depth, including but not limited to modern language constructs like streams/lambda, generics, design patterns, and the Java Collections Framework. Key topics include class inheritance, interfaces, exception handling, file I/O, GUI programming, networking, and database connectivity with JDBC. Emphasizes practical problem-solving skills and prepares students for professional software development roles and certification.

Semester Credits: 4

Lecture Hours: 4

Required Materials

Textbook

1. *Java, How to Program, 11th Edition*, Paul and Harvey Deitel. "Early Objects" edition. ISBN: 978-0134743356
2. *Java Oracle Certified Foundations Associate Java Foundations Exam 1Z0-811*, Hanumant Deshmukh. ISBN: 9798559925424

Other Required Materials:

Java JDK

Eclipse IDE (latest version)

VCCS COURSE OUTCOMES

By the end of this course, students should be able to:

1. Write programs fluent in the fundamentals of the Java programming language (Classes, Objects, Methods, Control Structures, Loops, Arrays, Interfaces, String and Character Class Methods, OOP Principles)
2. Adhere to industry-standard Java conventions and design patterns
3. Implement small graphical user interface-based (GUI) applications using Swing or JavaFX
4. Understand test-driven development and write unit tests to enhance software

quality and reliability

5. Work with variety of data sources in Java, including database access, serializable networks, and file I/O
6. Be able to read advanced language constructs and implement modular, multi-package software designs
7. Apply fundamental object-oriented design patterns and resilience strategies using real-world practice problems
8. Understand the relationship between software quality and abstraction, encapsulation, information hiding, polymorphism, loose coupling, etc.
9. Analyze and implement algorithms and data structures to solve computing problems, establishing a foundation for further studies in software engineering

Topical Description

Module 1: Introduction to Software Process & Design, Review of Java I – *Deitel Chapters 1-10, 14*

Module 2: Exception Handling, Inheritance, File I/O, Unit Tests – *Deitel Chapters 6-7, 9-11*

Module 3: Java Database Connectivity (JDBC), Prepared SQL Statements, UML Design – *Deitel Chapter 24*

Module 4: GUI Frameworks (Swing/JavaFX), Event Handling, Build Tools – *Deitel Chapters 12-13*

Module 5: Generics, Java Collections Framework, Data Structures – *Deitel Chapters 16, 20*

Module 6: Advanced Generics, Lambdas/Streams, Recursion – *Deitel Chapters 17-19*

Module 7: Networking and Threading in Enterprise Applications – *Deitel Chapters 21-23*

Note to Instructors

None

[TITLE IX STATEMENT](#)

[ADA STATEMENT](#)

