Course Syllabus Part I
CSD 405 Intermediate Java Programming

3 credit hours

Course Description

This course is designed to teach principles of Object-Oriented (OO) programming using Java. Topics include the language syntax, OO concepts, and advanced features of the Java programming language. Topics include inheritance, polymorphisms, abstracts, exception handling, basic input and output. Students will gain experience using agile development techniques, and gain an understanding of how to use good security practices in developing software.

Course Prerequisites

CSD 320 Programming with Java

Course Skills

- Write more complex applications using Object-Oriented (OO) development skills
- Understand Java's basic implementation of OO development features
- Use Java's more advanced OO development features
- Document applications for future maintainability

Course Objectives

Students who successfully complete this course should be able to:

- Develop Classes for holding, manipulating, and accessing data
- Implement Inheritance and Polymorphism based on application requirements
- Evaluate Exception Handling needs and coding error corrections
- Write and Implement Interfaces to solve application needs
- Demonstrate JavaFX Basics and Create Graphical User Interfaces (GUIs) using Event-Driven Application results.

Grading Scale

Letter Grade	Percentage Grade	Letter Grade	Percentage Grade
A	≥ 92.5%	C	< 76.5% and ≥ 72.5%
A-	< 92.5% and ≥ 89.5%	C-	< 72.5% and ≥ 69.5%
B+	< 89.5% and ≥ 86.5%	D+	< 69.5% and ≥ 66.5%
B	< 86.5% and ≥ 82.5%	D	< 66.5% and ≥ 62.5%
B-	< 82.5% and ≥ 79.5%	D-	< 62.5% and ≥ 59.5%
C+	< 79.5% and ≥ 76.5%	F	< 59.5%

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Topic Outline

I. Work with Classes
   A. Describe Classes
   B. Create Class Instances
   C. Define Reference Variables
   D. Control Class Access
   E. Use Java Library Classes
   F. Use Instance and Static Variables
   G. Class Scope

II. Object-Oriented Paradigm
   A. Relationships Between Classes
   B. Wrapper Classes for Primitives
   C. Object Type and Primitive Type Conversions
   D. More on Strings
   E. StringBuilder
   F. StringBuffer

III. Inheritance and Polymorphism
   A. Subclass and Superclass
   B. Invoke Super Class Methods From Sub Class
   C. Override Methods
   D. Polymorphism
   E. Implement a Stack and ArrayList
   F. Use the protected Access Modifier
   G. Understand the final Access Modifier

IV. Exception Handling
   A. try
   B. catch
   C. finally

V. Use I/O Classes

A. File Class
B. PrintWriter Class
C. Scanner Class

VI. Abstract Class and Interfaces
   A. Design an Abstract Class
   B. Work With Wrapper Classes
      a. BigInteger
      b. BigDecimal
      c. Number
   C. Work with the Cloneable Interface

VII. JavaFX Basics
   A. Creating Instances of the
      a. Stage Class
      b. Scene Class
   B. Define Common Style Properties
   C. Implement the ImageView Class
   D. Use Several of the JavaFX Pane Classes

VIII. Handle JavaFX Events
   A. MouseEvents
   B. KeyEvents
   C. Introduction to Animations

IX. UI Controls such as:
   A. Labels
   B. Buttons
   C. CheckBox
   D. RadioButton
   E. TextArea

X. Work with Multimedia Using
   A. MediaPlayer Class
   B. MediaView Class

This syllabi update reflects grading scale policy updates effective 4/1/2024.