Course Number: CSC 210

Course Title: Introduction to Computer Programming

Number of Credits: 3

Schedule: Three hours of lecture per week.

Catalog Description

Prerequisite: Concurrent enrollment in CSC 211 required for Computer Science majors and recommended for non-majors.


Course Topics

CSC 210 is the first programming course in the CS program for students who have no programming experience. Main topics include the following:

1. Problem solving using computers.
2. Console input using the Scanner class.
3. Java data types: byte, short, int, long, float, double, char, bool.
4. Arithmetic operators, arithmetic expressions, and basic library functions.
5. Java selections: if, if-else, switch-case. Programs with selections.
6. Java repetitions and jumps: while, do-while, and for loops, break, continue, exit, and return. Use of menus and sentinel loops.
7. Methods and their arguments. Local and global variables. The concept of scope. The concept of method overloading.
8. Arrays and array operations: displaying arrays, summing all elements, finding minimum and maximum elements, random shuffling, shifting elements. Methods with array arguments and return values.
9. Basic multi-dimensional arrays and operations: displaying arrays, summing all elements, finding minimum and maximum elements, random shuffling. Methods with two-dimensional arrays as arguments.
10. Java String class and text I/O.
11. Files: file open and close operations, reading from files with the Scanner class,
writing into files with the PrintWriter class.


13. Object-oriented thinking: class abstraction, procedural paradigm vs. object-oriented paradigm, inheritance.

The material covered in CSC 210 is distributed during 16 weeks of semester as follows:

1. Introduction and simple Java programs.
2. Data types, expressions.
3. Selections (if-else, switch).
4. Loops (while, do-while, for).
7. Midterm 1 with review.
8. Single-Dimensional arrays and array operations.
10. Multi-dimensional arrays (con’t).
11. Objects and classes
12. Midterm 2 with review.
14. Exception handling and text I/O.
15. Review and preparation for the final exam
16. Final exam according to University schedule

Course Objectives and Role in Program

CSC 210 is the first course in the sequence of mandatory software courses 210-220-340-413-600.

Objectives of this course include:

1. Presentation of fundamental concepts of programming languages and programming methods.
2. Presentation of syntax and semantics of Java.
3. Development of problem solving skills in the areas of procedural programming and basic object-oriented programming.
4. Expose students to fundamental concepts of software engineering.
5. Promote good programming practices, performance and documenting of programs.
6. Presentation of simple algorithms.

Learning Outcomes

At the end of this course students will

1. Demonstrate basic programming skills in Java.
2. Demonstrate understanding of concepts of algorithmic problem solving and design of computer programs.
3. Demonstrate the ability to write, debug and execute small and medium-sized Java programs.
4. Demonstrate their readiness to continue the study of object-oriented programming and computer algorithms.

Method of Evaluation

Student learning will be evaluated on the basis of

1. Completeness and quality of program assignments
2. Grade on midterm examination(s)
3. Grade on final examination


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