1. CSC 210 Computer Science I: Programs and Applications
2. Credit Hours: 3 (1 credit hour = 50 minutes)
3. Instructor: Susan D. Penko
5. Specific course information
   a. Description: This course covers the fundamental concepts of computers and computer programming. Repetition, selection, methods, simple data types, and arrays are covered. Object-orientation and graphical user interfaces are introduced. Structured design and programming techniques are emphasized.
   b. Prerequisites: None
   c. Required for Computer Science and Software Engineering majors. Also required of Computer Information Systems Analyst, Computer Network Security Analyst, Mathematics, and Pre-Engineering majors. It is one of two introductory programming course options required for Digital Media (both Graphical Design and Interactive) majors.
6. Specific goals for the course
   a. student outcomes: Students will be able to:
      • improve problem-solving skills;
      • develop algorithms to solve problems;
      • write programs incorporating the basic control structures of selection and repetition;
      • write programs involving arrays;
      • write programs which incorporate methods, and use appropriate parameter passing;
      • write programs using both standard I/O and file I/O;
      • exhibit fundamentals of good program design, coding, debugging and documentation;
      • use the C# programming language to solve a variety of practical problems;
      • convey a comprehension of vocabulary and terminology relevant to computer science in general, and programming in particular;
      • gain experience in understanding and interpreting written materials in mathematics and computer science;
      • obtain a basic introduction to object-oriented design and programming, as well as experience using an object-oriented language.
   b. Criterion 3 outcomes addressed:
      Computer Science -- CSCI:
      • (a) An ability to apply knowledge of computing and mathematics appropriate to the discipline.
      • (b) An ability to analyze a problem and identify and define the computing requirements appropriate to its solution.
      • (c) An ability to design, implement, and evaluate a computer-based system, process, component or program to meet desired needs.
      • (d) An ability to function effectively on teams to accomplish a common goal.
      • (i) An ability to use current techniques, skills, and tools necessary for computing practice.
      Software Engineering -- CSSE:
      • (a) An ability to apply knowledge of mathematics, science, and engineering.
(c) An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.

(e) An ability to identify, formulate and solve engineering problems.

(k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

7. Topics Covered

- Intro to course, C#, and programming (2 hrs.)
- Basic data types – declaring variables and constants of a given type, operators and operations relevant to the type, expressions and their evaluation and type, built-in methods for the type, etc. (7 hrs.)
- Selection – if, if...else, switch, conditional operator (4 hrs.)
- Repetition – for loop, while loop, do...while loop (5 hrs.)
- Arrays – declaring, accessing elements, searching, built-in methods and properties, multidimensional arrays (4 – 5 hrs.)
- I/O – console and file (4 hrs.)
- Methods – functional decomposition, parameter passing, types of parameters, return value (5 hrs.)
- GUI applications – forms (3 hrs.)
- Introduction to recursion (2 hrs.)
- Introduction to writing classes (4 hrs.)