Colorado CTE Course – Scope and Sequence

Course Name	Intro to Programming	Course Details	.5 Semester long
		Course = 0.50 Carnegie Unit Credit	
Course Description	Focuses on a general introduction to computer programming. This course emphasizes the design and implementation of structured and logically correct programs with good documentation. It is centered on basic programming concepts, including control structures, modularization, and data processing. A structured programming language is used to implement program designs. It emphasizes the writing of multiple programs following the software development process, from start to finish, including design, implementation, and testing.		
Note:	This is a suggested scope and sequence for the course content. The content will work with any textbook or instructional resource. If locally adapted, make sure all competencies are covered. Course aligns to CCNS (CSC119). Please contact your local community college for further information regarding opportunities for credit.		
SCED Identification #	10151	Schedule calculation based on 60 calendar days of a 90-day semester. Scope and sequence allows for additional time for guest speakers, student presentations, field trips, remediation, or other content topics.	

All courses taught in an approved CTE program must include Essential Skills embedded into the course content. The Essential Skills Framework for this course can be found at **https://www.cde.state.co.us/standardsandinstruction/essentialskills**

COURSE COMPETENCIES AND OUTCOMES

STUDENT COMPETENCIES

The competencies you will demonstrate in this course are as follows:

A. Input data from the computer keyboard using standard input and output commands via a programming language.
B. Create a program that demonstrates the use of variables and constants.
C. Program statements that show a basic understanding of types of variables, at a minimum integer, real, character and string.
D. Design a program that outputs processed data to the computer screen.
E. Develop and implement programs from problem statements.
F. Write multiple programs using control structures and functions/modules.
G. Write functions/modules proving a basic understanding of variable scope.
H. Design, write, and modify a program using 1D array processing.
I. Document programs with standards required in the class.
J. Convert numbers from base 10 to binary and hexadecimal.

The module outcomes that will permit you to demonstrate course competencies are:

MODULE 1

Outcomes & Competencies

1. Convert Decimal Numbers to Binary Numbers. J
2. Convert Decimal Numbers to Hexadecimal Numbers. J
3. Convert Binary Numbers to Hexadecimal Numbers. J
4. Convert Hexadecimal Numbers to Binary Numbers. J
5. Create a simple program from a problem statement using
6. Python that prompts the user for input and displays the output. A, B, C, D, E, I

MODULE 2

Outcomes & Competencies

1. Identify the different types of variables and constants. B,C
2. Identify the basic shapes in a flowchart. I
3. Design a program's behavior with a flowchart. A,D,I
4. Identify the syntax used in pseudocode. I
5. Design a flowchart and pseudocode of a program with inputs, processes, and outputs. A,B,C,D,I
6. Design a program using pseudocode and Python. A,B,C,D,I

MODULE 3

Outcomes & Competencies

1. Design a program in pseudocode and Python with inputs from a computer keyboard and outputs to the computer screen. A, B, C, D
2. Design a program using a loop structure in pseudocode and Python for a given programming situation. A, B, C, D

MODULE 4

Outcomes & Competencies

1. Design programs that use basic elements of functions and modules for variable scope in pseudocode and Python. A, B, C, D, G
2. Create a program that uses Lists as arrays in Python. B, C, D, F, H

MODULE 5

Outcomes & Competencies

1. Develop programs in both pseudocode and Python that use control structures and modules. F
2. Select a data structure appropriate to a programming task. F

CTSO Connections

FBLA

- Coding & Programming
- Computer Game & Simulation Programming