

Course Competency

COP 1047C Introduction to Python Programming

Course Description

This is a course in Python programming available for students at all levels. Students will learn the syntax and rules of the Python language, including how to code, compile, and execute programs. Students study program design, structured modular programming arrays, report generation, and file processing. (3 hr. lecture; 2 hr. lab).

Course Competency	Learning Outcomes
<p>Competency 1:The student will demonstrate an understanding of the program development process by:</p>	<ol style="list-style-type: none"> 1. Numbers / Data 2. Critical thinking 3. Computer / Technology Usage
<ol style="list-style-type: none"> 1. a) Writing pseudo code for program development before writing the code. b) Applying the techniques of functional decomposition. c) Incorporating adequate and meaningful comments into the source code of programming projects. d) Participating in a team to develop a solution to a problem. e) Testing and debugging programming logic and code. 	
<p>Competency 2:The student will demonstrate an understanding of mastery of basic Python fundamental data types and operators by:</p>	<ol style="list-style-type: none"> 1. Numbers / Data 2. Critical thinking 3. Computer / Technology Usage
<ol style="list-style-type: none"> 1. a) Understanding the use of variables in Python for programming assignments. b) Using descriptive and meaningful names in programming assignments. c) Creating programs that use casting of data types. d) Creating programs that use all existing operator(s) (+,-,*,%,/,=) available in Python. e) Explaining the properties of a variable such as name, value, scope, 	

persistence, and size.	
Competency 3: The student will demonstrate an understanding of conditional statements by:	<ol style="list-style-type: none"> 1. Numbers / Data 2. Critical thinking 3. Computer / Technology Usage
<ol style="list-style-type: none"> 1. a) Creating programs that use if, else if, and else statements to evaluate conditions. b) Creating a program that uses logical operators (and, not, or) in conditional statements. c) Creating a program that uses comparison operators (==, <, >, <=, >=) in conditional statements. d) Creating a program that uses nested conditional statements. 	
Competency 4: The student will demonstrate an understanding of loops by:	<ol style="list-style-type: none"> 1. Numbers / Data 2. Critical thinking 3. Computer / Technology Usage
<ol style="list-style-type: none"> 1. a) Creating programs that use while and for loops to create repetition. b) Analyzing existing programs with loops and determining the results. c) Creating programs that use nested loops. 	
Competency 5: The student will demonstrate an understanding of mastery of functions by:	<ol style="list-style-type: none"> 1. Numbers / Data 2. Critical thinking 3. Computer / Technology Usage
<ol style="list-style-type: none"> 1. a) Creating functions based on problem specifications. b) Creating programs that include and use existing Python Library functions. c) Creating a program that uses functions to return values. d) Identifying the scope of variables in functions. 	
Competency 6: The student will demonstrate an understanding of structured data types by:	<ol style="list-style-type: none"> 1. Numbers / Data 2. Critical thinking

	3. Computer / Technology Usage
1. a) Creating a program that uses: - Lists; - Tuples; - Sets; - Dictionaries b) Importing a Python library to perform specific tasks with data such as graphing and manipulating dataframes.	
Competency 7: The student will demonstrate an understanding of the input and output functions of a program by:	<ol style="list-style-type: none"> 1. Numbers / Data 2. Critical thinking 3. Computer / Technology Usage
1. a) Writing a program that collects input and converts it to the appropriate data type. b) Writing a program that reads an existing sequential file. c) Writing a program that creates a sequential file. d) Writing a program that produces formatted printed output. e) Implementing exception handling.	

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