COURSE OUTLINE: CSD105 - PYTHON

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Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	CSD105: PYTHON
Program Number: Name	2090: COMPUTER PROGRAMMER 4018: GIS-APPLICATION SPEC 4029: ELECTRICAL TY-PROCES
Department:	COMPUTER STUDIES
Semesters/Terms:	19F
Course Description:	The Python programming language, is an easy-to-learn and increasingly popular object-oriented language, that allows students to become comfortable with the fundamentals of programming without the troublesome syntax that can be challenging for novices. With the knowledge acquired using Python, students gain confidence in their skills and learn to recognize the logic behind developing high-quality programs. The course focuses on the use of variables, program structure, control structures, functions and lists.
Total Credits:	3
Hours/Week:	3
Total Hours:	45
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
Substitutes:	CSD104, ELN331
This course is a pre-requisite for:	CSD102, CSD203, ELN340, GIS440
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**2090 - COMPUTER PROGRAMMER** VLO 2 Develop, test, document, deploy, and maintain secure program code based on specifications. **4018 - GIS-APPLICATION SPEC** VLO 2 Understand the typical data structures, algorithms, and computational problems that are encountered in various GIS technologies; VLO 5 Be capable of designing and executing, in a progressive manner, algorithms and programs to handle spatial data and associated hardware devices in a programmatic environment of a GIS; **4029 - ELECTRICAL TY-PROCES** VLO 2 Analyze and solve complex technical problems related to electrical systems by applying mathematics and science principles. VLO 8 Use computer skills and tools to solve a range of electrical related problems.

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Essential Employability Skills (EES) addressed in this course:	EES 3 Execute mathematical operations accurately.
	EES 5 Use a variety of thinking skills to anticipate and solve problems.

Course Evaluation:	Passing Grade: 50%, D

Other Course Evaluation & Assessment Requirements:	To successfully pass this course, the student must receive passing grades for both the Test portion of the class AND the Laboratory portion.

Grade
Definition Grade Point Equivalent
A+ 90 - 100% 4.00
A 80 - 89%
B 70 - 79% 3.00
C 60 - 69% 2.00
D 50 - 59% 1.00
F (Fail) 49% and below 0.00

CR (Credit) Credit for diploma requirements has been awarded.
S Satisfactory achievement in field /clinical placement or non-graded subject area.
U Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR Grade not reported to Registrar`s office.
W Student has withdrawn from the course without academic penalty.

Books and Required Resources:	Starting Out with PYTHON by Tony Gaddis Publisher: Pearson Edition: 4th ISBN: 9780134489209

Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
1. Describe the nature of computers and programming	1.1 Differentiate between and describe the characteristics of computer Hardware and Software 1.2 Describe the Compile Link vs Interpreter systems for computer programming. 1.3 Describe what happens when you run a program. 1.4 Use the Python Interpreter and a Text Editor to create python programs.
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Describe the nature of Input, Processing, and Output as it relates to computer programming.	2.1 Describe the Input, processing, and output characteristics of computer programs. 2.2 Display output with the print Function. 2.3 Write code Comments 2.4 Describe the nature of a variables and the different types of data 2.5 Read input form the keyboard 2.6 Performing calculations 2.7 Utilize various methods for formatting the output.
Course Outcome 3	**Learning Objectives for Course Outcome 3**
3. Implement the various Decision Structures and Boolean Logic	3.1 Utilize the if and the if-else statements 3.2 Compare Strings 3.3 Utilize Nested Decision structures and the if-elif-else

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	statements 3.4 Describe and utilize Logical operators 3.5 Describe and utilize Boolean Variables
Course Outcome 4	**Learning Objectives for Course Outcome 4**
4. Utilize Repetition Structures in order to solve iterative problems	4.1 Describe the general nature of Repetition structures 4.2 Describe and utilize the while loop: a conditional-controlled loop 4.3 Describe and utilize the for loop: a count-controlled loop 4.4 Calculating a running total utilizing a loop 4.5 Describe the purpose of Sentinels 4.6 Create Input validation loops 4.7 Solve problems involving Nested loops
Course Outcome 5	**Learning Objectives for Course Outcome 5**
5. Implement User-Defined Functions	5.1 Describe the nature of user defined functions. 5.2 Define and call a user defined function. 5.3 Modularize a program using functions. 5.4 Differentiate Local variables from global variables and global constants. 5.5 Pass Arguments to Functions
Course Outcome 6	**Learning Objectives for Course Outcome 6**
6. Implement Value-Returning Functions and Modules	6.1 Describe how functions can both receive and return data. 6.2 Write value-returning Functions 6.3 Examine the math module as an example. 6.4 Store Functions in Modules
Course Outcome 7	**Learning Objectives for Course Outcome 7**
7. Implement File I/O and Exceptions	7.1 Describe the nature of file input/output. 7.2 Utilize loops to process files 7.3 Describe the nature of a record 7.4 Write code to Process records. 7.5 Describe the nature of exceptions and write code to handle exceptions.
Course Outcome 8	**Learning Objectives for Course Outcome 8**
8. Implement Lists and Tuples	8.1 Describe the nature of a list. 8.2 Utilize lists consisting of various data types. 8.3 Describe how lists can be sliced. 8.4 Slice lists extracting sublist data. 8.5 Find Items in Lists with the IN operator 8.6 Compare list methods and list function. 8.7 Copy Lists 8.8 Implement Two-Dimensional Lists 8.9 Describe and utilize Tuples.
Course Outcome 9	**Learning Objectives for Course Outcome 9**
9. Utilize strings.	9.1 Describe the Basic string operations 9.2 Compare Mutable vs Immutable 9.3 Implement String slicing 9.4 Test Search and Manipulate strings

Evaluation Process and Grading System:	**Evaluation Type**	**Evaluation Weight**

	Assignments and Quizes	40%
	Tests	60%
Date:	August 27, 2019	
Addendum:	Please refer to the course outline addendum on the Learning Management System for further information.	