

**SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY**

**SAULT STE. MARIE, ONTARIO**



**COURSE OUTLINE**

**COURSE TITLE:** PROGRAMMING USING PYTHON

**CODE NO. :** CSD104 **SEMESTER:** 1

**PROGRAM:** All I.T. Studies Students

**AUTHOR:** Dennis Ochoski

**DATE:** Sept/2016 **PREVIOUS OUTLINE DATED:** Sept/2015

**APPROVED:**

**Corey Meunier  
CHAIR**

**May 2016  
DATE**

**TOTAL CREDITS:** 5

**PREREQUISITE(S):** NONE

**HOURS/WEEK:** 5

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## I. 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.

The main objective of the course is to set the foundation for the I.T. student's other programming languages throughout the duration of the program. The focus is not to make you an expert Python programmer, but rather have you recognize the main programming constructs that you will encounter in all programming languages.

## II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to understand:

### 1. Introduction to Computers and Programming

#### Potential Elements of the Performance:

- Introduction.
- Hardware and Software
- How computers store data
- Pseudocode and flowcharting
- How a program works
- Using Python.

### 2. Input, Processing, and Output

#### Potential Elements of the Performance:

- Designing a program
- Input, processing, and output
- Display output with the *print* Function.
- Comments
- Variables
- Reading input form the keyboard
- Performing calculations

### 3. Decision Structures and Boolean Logic

#### Potential Elements of the Performance:

- The *if* statement
- The *if-else* statement
- Comparing Strings
- Nested Decision structures and the *if-else-if-else* statement
- Logical operators
- Boolean Variables

### 4. Repetition Structures

#### Potential Elements of the Performance:

- Introduction to Repetition structures
- The *while* loop: a conditional-controlled loop
- The *for* loop: a count-controlled loop
- Calculating a running total
- Sentinels
- Input validation loops
- Nested loops

### 5. User-Defined Functions

#### Potential Elements of the Performance:

- Introduction to Functions
- Defining and Calling a Function
- Designing a program to use Functions
- Local variables
- Passing Arguments to Functions
- Global variables and global constants

## 6. Value-Returning Functions and Modules

### Potential Elements of the Performance:

- Introduction to value-returning Functions: generating random numbers
- Writing your own value-returning Functions
- The *math* module
- Storing Functions in Modules

## 7. Lists and Tuples

### Potential Elements of the Performance:

- Sequences
- Introduction to Lists
- List Slicing
- Finding Items in Lists with the IN operator
- List Methods and Useful Built-in Functions
- Copying Lists
- Two-Dimensional Lists
- Tuples

### **III. TOPICS:**

1. Introduction to Computers and Programming
2. Input, Processing, and Output
3. Decision Structures and Boolean Logic
4. Repetition Structures
5. User-Defined Functions
6. Value-Returning Functions and Modules
7. Lists and Tuples

**IV. REQUIRED RESOURCES/TEXTS/MATERIALS:**

Starting Out with PYTHON, 3<sup>rd</sup> Edition Tony Gaddis  
*ISBN-13: 978-0-13-358273-4*

**Option 1:** Purchase a subscription to a digital copy (eBook).

The student can purchase a web version or a downloadable version. The most common subscription timeframe is 180 days but this varies depending on the text, publisher and/or web site. After the subscription timeframe has expired, the student no longer can access the text unless they extend/renew the subscription. If the bookstore offers an e-version of the text, the subscription timeframe is unlimited, but the subscription cost may be greater.

The advantages of the eBook version over the hardcopy version are twofold: savings of approximately 40% – 60%, and, no physical text to carry.

eBook Links: <https://www.vitalsource.com/student-etextbooks>

**Option 2:** Purchase a hardcopy.

The student may choose to purchase a hardcopy of the text from the bookstore.

**V. EVALUATION PROCESS/GRADING SYSTEM:**

Tests	60%
Assignments	<u>40%</u>
	100%

The following semester grades will be assigned to students:

<b>Grade</b>	<b><u>Definition</u></b>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	Below 50%	
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.	

## VI. OTHER EVALUATION CONSIDERATIONS

1. In order to pass this course the student must obtain an overall test/quiz average of **50%** or better, as well as, an overall assignment average of **50%** or better. A student who is not present to write a particular test/quiz, and does not notify the professor beforehand of their intended absence, may be subject to a zero grade on that test/quiz.
2. There will be **no** supplemental or make-up quizzes/tests in this course unless there are extenuating circumstances.
3. Assignments must be submitted by the due date according to the specifications of the professor. Late assignments will normally be given a mark of zero. Late assignments will only be marked at the discretion of the professor in cases where there were extenuating circumstances.
4. Any assignment/projects submissions, deemed to be copied, will result in a **zero** grade being assigned to **all** students involved in that particular incident.
5. It is the responsibility of the student to ask the professor to clarify any assignment requirements.
6. The professor reserves the right to modify the assessment process to meet any changing needs of the class.

## VII. SPECIAL NOTES

### Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session. *It is the departmental policy that once the classroom door has been closed, the learning process has begun. Late arrivers may not be granted admission to the room.*

Absences due to medical or other unavoidable circumstances should be discussed with the professor, otherwise a penalty may be assessed. The penalty depends on course hours and will be applied as follows:

<b>Course Hours</b>	<b>Deduction</b>
5 hrs/week (75 hrs)	1.0% /hr
4 hrs/week (60 hrs)	1.5% /hr
3 hrs/week (45 hrs)	2.0% /hr
2 hrs/week (30 hrs)	3.0% /hr

Final penalties will be reviewed and assessed at the discretion of the professor.

## VIII. COURSE OUTLINE ADDENDUM

The provisions contained in the addendum located in D2L and on the portal form part of this course outline.