SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

SAULT COLLEGE

COURSE OUTLINE

COURSE TITLE: **Programming Using Python**

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

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

AUTHOR: **Willem de Bruyne**

DATE: **June 2012** **PREVIOUS OUTLINE DATED:** **New**

APPROVED:

"Brian Punch" **Aug/2012**

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Chair **DATE**

TOTAL CREDITS: **5**

PREREQUISITE(S): **None**

HOURS/WEEK: **Five**

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 control structures, functions, arrays, and pointers before objects and classes.

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
- 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
- More about data output

3.   Simple 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

4. 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-elif-else* statement
- Logical operators
- Boolean Variables

5. 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

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. Files and Exceptions

Potential Elements of the Performance:

- Introduction to file input and output
- Using loops to process files

- Processing records
- Exceptions

8. 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

9. More About Strings

Potential Elements of the Performance:

- Basic string operations
- String slicing
- Testing, searching, and manipulating strings

10. Dictionaries and Sets

Potential Elements of the Performance:

- Dictionaries
- Sets
- Serializing Objects

11. Classes and Object-Oriented Programming

Potential Elements of the Performance:

- Procedural and object-oriented programming
- Classes
- Working with instances
- Techniques for designing classes

12. Inheritance

<u>Potential Elements of the Performance</u>:

- Introduction to Inheritance
- Polymorphism

III.   TOPICS:

1. Introduction to Computers and Programming
2. Input, Processing, and Output
3. Simple Functions
4. Decision Structures and Boolean Logic
5. Repetition Structures
6. Value-Returning Functions and Modules
7. Files and Exception
8. Lists and Tuples
9. More About Strings
10. Dictionaries and Sets
11. Classes and Object-Oriented Programming
12. Inheritance

IV.   REQUIRED RESOURCES/TEXTS/MATERIALS:

Starting Out with PYTHON, 2nd Edition Tony Gaddis
ISBN-13: 978-0-13-257637-6

V. EVALUATION PROCESS/GRADING SYSTEM:

12 Quizzes @ 5%   60%
12Assignments @ 3%   36%
Part./Present.   4%
                        100%

The following semester grades will be assigned to students:

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.

The professor reserves the right to adjust the mark up or down 5% based on attendance, participation, leadership, creativity and whether there is an improving trend.

A minimum of **80% attendance** required in the labs and lectures.

- Students must complete and pass both the test and assignment portion of the course in order to pass the entire course.
- All Assignments must be completed satisfactorily to complete the course.
- Late hand in penalties will be a zero grade unless you have prior permission from the instructor
- Makeup Tests are at the discretion of the instructor and will be assigned a maximum grade of 50%.

- The professor reserves the right to adjust the number of tests, practical tests and quizzes based on unforeseen circumstances. The students will be given sufficient notice to any changes and the reasons thereof.
- A student who is absent for 3 or more times without any valid reason or effort to resolve the problem will result in action taken.

NOTE: If action is to be taken, it will range from marks being deducted to a maximum of removal from the course.

Eligibility for X Grades/Upgrading of Incompletes   When a student's course work is incomplete or final grade is below 50%, there is the possibility of upgrading to a pass when a student meets all of the following criteria: The student's attendance has been satisfactory. An overall average of at least 50% has been achieved. The student has not had a failing grade in all of the theory tests taken. The student has made reasonable efforts to participate in class and complete assignments.

 Note: **The opportunity for an X grade is usually reserved for those with extenuating circumstances.**   The nature of the upgrading requirements will be determined by the instructor and may involve one or more of the following: completion of existing labs and assignments, completion of additional assignments, re-testing on individual parts of the course or a comprehensive test on the entire course.

Labs:
Lab activities represent a very important component of this course in which practical 'hands-on' skills will be developed. Because of this, attendance is mandatory and the satisfactory completion of all lab activities is required. Evaluation of lab work in-class will be done. It is the student's responsibility to discuss absences from regularly scheduled labs with the instructor so that alternate arrangements (where possible) can be made to complete the lab requirements.

Attendance:
Absenteeism will affect a student's ability to succeed in this course.
Absences due to medical or other unavoidable circumstances should be discussed with the professor. Students are required to be in class on time and attendance will be taken within the first five minutes of class. A missed class will result in a penalty in your marks unless you have discussed your absence with the professor as described above. Unauthorized absences could result in a zero grade being assigned. The penalty depends on course hours and will be applied as follows:

Course Hours	Deduction
5 hrs/week (75 hrs)	1% / hr

4 hrs/week (60 hrs)	1.5% /hr
3 hrs/week (45 hrs)	2% /hr
2 hrs/week (30 hrs)	3%/hr

Absentee reports will be discussed with each student during regular meetings with Faculty Mentors. Final penalties will be reviewed by the professor and will be at the discretion of the professor.

Electronic Devices in the Classroom:
Students who wish to use electronic devices in the classroom will seek permission of the faculty member before proceeding to record instruction. With the exception of issues related to accommodations of disability, the decision to approve or refuse the request is the responsibility of the faculty member. Recorded classroom instruction will be used only for personal use and will not be used for any other purpose. Recorded classroom instruction will be destroyed at the end of the course. To ensure this, the student is required to return all copies of recorded material to the faculty member by the last day of class in the semester. Where the use of an electronic device has been approved, the student agrees that materials recorded are for his/her use only, are not for distribution, and are the sole property of the College.

VI.   SPECIAL NOTES:

Disability Services:
If you are a student with a disability (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Disability Services office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Retention of Course Outlines:
It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Communication:
The departmental expectations are that I.T. Studies students will check their e-mail at least 3 times per day. Students should also make sure to check e-mail from home. Faculty use e-mail as the primary means to communicate with students outside of class contact.

Plagiarism:
Students should refer to the definition of "academic dishonesty" in *Student Code of Conduct*. Students who engage in academic dishonesty will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Student Portal:
The Sault College portal allows you to view all your student information in one place. **mysaultcollege** gives you personalized access to online resources seven days a week from your home or school computer. Single log-in access allows you to see your personal and financial information, timetable, grades, records of achievement, unofficial transcript, and outstanding obligations, in addition to announcements, news, academic calendar of events, class cancellations, your learning management system (LMS), and much more. Go to https://my.saultcollege.ca.

Course Outline Amendments:
The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

Tuition Default:

Students who have defaulted on the payment of tuition (tuition has not been paid in full, payments were not deferred or payment plan not honoured) as of the first week of *November,* will be removed from placement and clinical activities. This may result in loss of mandatory hours or incomplete course work. Sault College will not be responsible for incomplete hours or outcomes that are not achieved or any other academic requirement not met as of the result of tuition default. Students are encouraged to communicate with Financial Services with regard to the status of their tuition prior to this deadline to ensure that their financial status does not interfere with academic progress.

VII.   PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII.   ADVANCE CREDIT TRANSFER:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question.