

**Common Course Outline**  
**CSIT 216**  
**Python Programming**  
**4 Credits**

**The Community College of Baltimore County**

**Description**

**CSIT 216–Python Programming** applies procedural and object-oriented techniques to application development. Shell, Graphical User Interfaces (GUI), and web applications are introduced. Topics include input and output, control structures, classes and objects, methods, functions, simple data structures, file I/O, and exception handling.

**4 Credits**

**Prerequisites: CSIT 111 or consent of the Program Director**

**Overall Course Objectives**

Upon completion of this course students will be able to:

1. identify the steps in the software design process;
2. design algorithms and implement them into working solutions;
3. classify data types;
4. code control structures;
5. develop classes, methods, and functions;
6. write programs using object-oriented techniques including classes, abstraction, inheritance, polymorphism, and encapsulation;
7. design graphical user interfaces;
8. write programs using strings;
9. write scripts that utilize arrays and lists;
10. organize data using data structures;
11. use files to store data;
12. use a database to store and retrieve data;
13. process exception handling;
14. enhance their programs by incorporate current Python programming libraries;  
and
15. examine the impact of testing and validating the solutions when developing an application.

**Major Topics**

- I. Use of an Integrated Development Environment (IDE)
- II. Program development life cycle
  - A. Design
  - B. Code

- C. Test
- D. Document
- III. Variables, naming conventions, and scope
- IV. Input and output
- V. Control structures
  - A. Decision
  - B. Repetition
- VI. Methods and functions
- VII. Classes and objects
  - A. Inheritance
  - B. Polymorphism
  - C. Abstraction
  - D. Encapsulation
- VIII. Arrays and lists
- IX. Strings
- X. File management
- XI. Database access
- XII. Graphical User Interface (GUI)
- XIII. Libraries

### **Course Requirements**

Grading procedures will be determined by the individual faculty member but will include the following:

1. Minimum of six programming projects\*
2. Two exams
3. Comprehensive final programming project or exam

\*These projects may include collaborative work, written portions and oral presentations as assigned by the faculty member.

Written Assignments: Students are required to utilize appropriate academic resources.

### **Other Course Information**

This course is taught in a computerized environment and is an elective in the Information Technology degree.