BAKER COLLEGE
STUDENT LEARNING OUTCOMES

CS1110A Python Programming
3 Semester Credit Hours

Student Learning Outcomes and Enabling Objectives

1. Examine python terminology, syntax, and methodology.
    a. Describe the basic features of Python.
    b. Define variables, expressions, objects, types, and operators.
    c. Compare different flow control mechanisms including selection (if-elif/else), repetition (while), and iteration (for).
    d. Build functional programs using the elements above problems.
2. Examine strings and their use in Python programming.
    a. Define strings and string representation.
    b. Explain string operations, methods, and functions.
    c. Build functional programs using strings.
3. Explore functions in Python programming.
    a. Describe the elements of a function, function flow, and parameter passing.
    b. Explain function scope, functions as objects, and passing mutable objects.
    c. Build functional programs utilizing functions.
4. Explore file handling in Python programming.
    a. Discuss reading and writing text files.
    b. Describe file creation and overwriting.
    c. Build functional programs for file manipulation.
5. Compare lists, tuples, dictionaries, and sets in Python programming.
    a. Contrast lists and tuples.
    b. Explain dictionaries and sets.
    c. Explain mutable objects and references.
    d. Use data structures including lists, tuples, stacks, queues, dictionaries, sets, and matrices while programming in Python
    e. Build well-documented, functional programs incorporating advanced data structures.
6. Create a functional program to solve a given problem.
    a. Utilize planning and the divide and conquer approach for developing programs.
    b. Develop the program.

c. Debug the program with exception handling techniques.

Big Ideas and Essential Questions

Big Ideas

- Core principles of programming
- Developing programs from simple to complex
- Divide and conquer approach to programming
- Integrated Development Environment
- Using programming for problem-solving

Essential Questions

1. How do programmers solve problems?
2. What is the Python programming environment?
3. Why do programmers use the Python programming environment?
4. What are the elements of the Python programming environment?
5. Why is Python programming suitable for implementing with certain applications?
6. How do the limitations of the Python programming environment impact your work as a programmer?

These SLOs are approved for experiential credit.

Effective: Fall 2023