AIDA 1410: Algorithms and Data Structures

A. COURSE DESCRIPTION

Credits: 2
Lecture Hours/Week: 2
Lab Hours/Week: 0
OJT Hours/Week: *.*
Prerequisites: This course requires the following prerequisite
   AIDA 1405 - Python I (Number of Years Valid: 5)
Corequisites: None
MnTC Goals: None

In this class, students will learn to write algorithms and create computer programs to solve problems. Topics include basic algorithm design, input parameters, sorting algorithms, arrays, stacks, and queues. Students must have a computer running C, Python, NumPy, and matplotlib. Students must be able to install programs and libraries on their computer.

B. COURSE EFFECTIVE DATES: 04/30/2024 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Run basic computer algorithms.
2. Write and run custom computer programs that accept user input, process data, and display output.
3. Import data stored as arrays to computer programs.
4. Analyze and run code that includes arrays.
5. Analyze and run code that includes stacks.
6. Analyze and run code that includes queues.
7. Incorporate advanced data structures from predefined Python libraries.

D. LEARNING OUTCOMES (General)

1. Write basic computer algorithm code.
2. Use common data structures to manage data within computer programs.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted