CS 5010 : FUNDAMENTALS OF PROGRAMMING

Semester Hours: 3.0   *Contact Hours: 3*
Coordinator: Venu Dasigi
Text: Programming in Python 3
Author(s):   Bailey Miller
Year: 2022

SPECIFIC COURSE INFORMATION

Catalog Description:
This course provides a review of fundamental concepts in programming (procedural programming, object oriented programming, data structures, and algorithms). Cannot be counted towards MS in CS. Prerequisite: Admission to MS in CS program or permission of instructor. Approved for distance education.

Course type: **REQUIRED**

SPECIFIC COURSE GOALS

- I am able to design, implement, and use complex data structures.
- I am able to understand, implement, and use complex algorithms.
- I can use fundamental procedural and object-oriented programming techniques.
- I am able to implement a software solution to a computing problem.

LIST OF TOPICS COVERED

- Review of Fundamentals of Programming (~5 Weeks)
    - Data Types, Functions, Conditional Statements
    - Arrays and Loops
    - File Operations
    - Recursion
- Review of Object-Oriented Programming (~5 Weeks)
    - Classes, Encapsulation, Inheritance, and Polymorphism
    - Function/Operator Overloading
- Review of Algorithms & Data Structures (~5 Weeks)
    - Linked Lists
    - Searching & Sorting algorithms

- Stacks, Queues, Trees, and other data structures
- Big-O Notation