Introduction to Computer Science (CSCI 2215/5525)  
Dr. Neelu Sinha

Ref Book: How to Solve it - by G. Polya (on Reserve at the Library)

About the Course: This course takes a concept-oriented approach to introduce the foundations of Computer Science.

Programming Languages for Hands-on Projects: C++ and C#

Prerequisite: CSCI 1205/5505: Introduction to programming: C++ or C#.

TOPICS:
1) An introduction to Computer Science and Architecture
   • The Big Picture (Ch1)
2) The Information Layer
   • Binary Values and Number System (Ch2)
   • Data Representation (Ch3)
3) The Hardware Layer
   • Gates and Circuits (Ch4)
   • Computing Components (Ch5)
4) Introduction to Recursive Programming
   • Formulation of problems and algorithms
   • Recursion as a programming tool
5) Pointers
   • Concept of Pointers
   • Dynamic Memory Allocation
6) The Programming Layer (C++ and C#)
   • Low Level Programming Languages and Pseudocode (Ch6)
   • Problem Solving and Algorithms (Ch7)
   • Abstract Data Types (ADT) and Subprograms (Ch8)
   • Object Oriented Design (OOD) and Programming (OOP) (Ch9)
      - C++ Classes, Data Abstraction
7) The Operating Systems Layer
   • Operating Systems (Ch10)
   • File Systems (Ch11)
8) The Application Layer
   • Information Systems (Ch12)
   • Artificial Intelligence (Ch13)
   • Simulation, Graphics, Gaming and Other Applications(Ch14)
9) The Communications Layer
   • Networks (ch15)
   • The world wide web (Ch16)
10) Dynamic Data Structures & their Implementation
    • Dynamic data management tools
    • Lists and list management
    • Stacks, Queues, Trees, Graphs, etc.
11) Complexity Analysis of Algorithms

Office Hours  
M, Th: 11:15AM – 12:15PM  
Th: 4:55PM – 5:25PM  
(or, by appointment)

Grading Policy:  
Assignments/Projects 40%  
Quizzes and MidTerm 30% (~ 7th week)  
Final Exam 30% (Finals week)

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Note: There will be no makeup for any missed Quiz/Exam. Grading penalties will be assessed for late assignment/project submissions. It is assumed that you are familiar with FDU Academic Integrity Policy.

FDU  
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