Catalog Description
Introduction to computer organization. Signed and unsigned number representation, character representation, ASCII codes. Assembly language programming, instruction format and types, memory and I/O instructions, dataflow, arithmetic, and flow control instructions, addressing modes, stack operations, and interrupts. Datapath and control unit design. RTL, microprogramming, and hardwired control. Practice of assembly language programming.
Prerequisite: COE 200 and ICS 201

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Office Hours  SUMTW 11:30-12:30 PM (and by appointment)

Course Learning Outcomes

1. Knowledge of basic computer organization, information representation, and basic assembly language concepts.
2. Ability to analyze, design, implement, and test assembly language programs.
3. Ability to use tools and skills in analyzing and debugging assembly language programs.
4. Ability to design the datapath and control unit of a simple CPU.
5. Ability to demonstrate self-learning capability.
6. Ability to work in a team.

Text Books & References:


Grading Policy
Laboratory  20%  
Programming Assignments  15%  
Quizzes  10%  
Exam I  15%  
Exam II  20%  
Final  20%  

- Assignments are to be submitted in class in the specified due date.  
- Late assignments will be accepted but will be penalized 10% per each late day.

Course Topics

1. **Introduction and Information Representation.**  
   6 lectures  

2. **Assembly Language Concepts.**  
   6 lectures  

3. **8086 Assembly Language Programming.**  
   20 lectures  

4. **CPU Design.**  
   12 lectures  

5. **Instruction Set Formats.**  
   1 lecture  
   Fixed vs. variable instruction format. Examples of instruction formats.