EE331-Digital Systems (Required Course)

Code and Name: EE331 Digital Systems
Credit Hours: 3 (Lecture: 3, Tutorial: 1)

Textbook:
- The 8088 and 8086 Microprocessors, Walter A. Triebel and Avtar Singh, Prentice Hall, 2002.

Other References:
- Emulator, emu8086

Course Description:
Microprocessor software and hardware models; addressing modes and techniques; Instruction sets. Assembly language programming and debugging. Memory and input/output mapping. Input and output instructions. Input/output interfacing. Introduction to interrupts

Pre-requisites: CS107 and EE231.
Co-requisites: None.

Course Learning Outcomes:
With relation to ABET Student Outcomes (SOs: 1-7)
1. Recognize ways of interfacing the 8086 microprocessors. (2)
2. Recognize basic architecture of Microprocessor, and the use of microprocessor- based systems for embedded applications. (1)
3. Write simple programs on different programming techniques. (1)
4. Judge, modify and debug an already written program according to its structure, program algorithm, and time of execution. (1)
5. Demonstrate responsibility when working as a team to build a program composed of modules and communicating with his colleagues working on the same program. (5)
6. Identify memory address of branching instructions. (2)

Topics to be covered:

- Introduction to Microprocessor and Microcomputers.
- Software Architecture of 8088 and 8086 microprocessor.
- Assembly Language Programming.
- Machine Language coding.
- 8088/8086 Programming- Integer Instructions and Computations.
- 8088/8086 Programming - Control flow and program structures.
- Interface of 8088/8086 (Input Output Instructions).

Grading Policy:
The grading for the course are 60% coursework and 40% Final Exam. The coursework consists of two Midterm Exams, where each midterm exam is worth 20%. It also includes quizzes, homework, and projects for the remaining 20% that is modified by the course instructor.