ELE 457: MICROPROCESSOR (elective)

Credit: 3 hours.

Catalog Description: Analysis of computer logic systems. Topics include parallel and serial I/O ports; memory interface, I/O interface, and interrupt interface.

Prerequisites: ELE 356.

Prerequisite by topic: Synchronous and asynchronous machines
Knowledge of at least one (1) assembly level language
Knowledge of at least one (1) high level language
Familiarity with software algorithmic implementation

Textbooks(s) and/or Other Required Materials: Microprocessor System Design: 68000 Hardware, Software, and Interfacing, Alan Clements, PWS-Kent. Instructor generated notes. Microprocessors and Interfacing: Programming and Hardware, Douglas Hall, McGraw-Hill.

Topics Covered:
- von Neumann Architecture
- Overview of 16 and 8 bit microprocessor families
- Microprocessor software models
- Microprocessor hardware models
- Clocks
- Timing
- Latches
- Transceivers
- Memory design
- Interrupt structures
- Serial I/O
- Bus structures

Class/Laboratory Schedule:
Lecture: 2.5 hours/week
Lab: none

Course Objectives and Relationship to Program Outcomes:

1. The acquisition of the fundamental microprocessor interfacing techniques. Outcomes: A, C, E.
2. The ability to read, interpret, and utilize appropriate data sheet information. Outcomes: A, C, E, I, J.
3. The ability to analyze, design, and implement microprocessor-based circuits. Outcomes: A, B, C, E, G, H, J, K.
Coverage (and level) of ABET Outcomes:  A (3), B (1), C (3), E (3), G (2), H (1), J (1) and K (1).

Contribution of Course to meeting the Professional Component:
   Engineering Topics: 100%

Date:  June 2004.