CC 411- Introduction to Microprocessors

CREDIT HOURS
3 Hours

CONTACT HOURS (Hours/week)
Lecture: 2; Tutorial: 2; Lab: 2

COURSE COORDINATOR
Prof. Ahmed Fahmy

TEXT BOOK:
Muhammad Ali Mazidi and Janice Gillispie Mazidi "80x86 IBM PC and compatible computers", Prentice Hall, latest edition.

COURSE DESCRIPTION:
Microprocessors and microcomputers - Microcomputer structure – microprocessor – memory - buses (synchronous and asynchronous) - I/O - 16/32-bit microprocessor architecture - Instruction cycle – microinstructions - micro-programming - instruction decoding - Reduced Instruction Set computer (RISC) architecture - Complex Instruction Set computer (CISC) architecture - Memory (RAM, ROM, memory mapping of I/O) - I/O (parallel and serial I/O interfaces, system clock, clock phases and bit rates) - Interrupts (types, handling of interrupts) - Software aids (text editors and assemblers, linkers and macro-assemblers).

PREREQUISITE:
CC 312 or CC216

RELATION OF COURSE TO PROGRAM:
Required

COURSE INSTRUCTION OUTCOMES:
The student is able to work with the Intel 80386 microprocessor, its connected peripherals and its assembly language format.

TOPICS COVERED:

- Introduction to microprocessors Historical background.
- 80386 Microprocessor architecture.
- Real mode software model.
- Addressing modes.
- The instruction set & Machine Language coding.
- Protected mode Architecture Model.
- Virtual memory Management.
- Memory Interface.

- DRAM.
- Input/output interface.
- Interrupts and exception processing.
- The 486 and Pentium microprocessors family.

CONTRIBUTION OF COURSE TO MEET THE REQUIREMSNTS OF CRITERION 5:

Professional Component Content			
Math and Basic Sciences	**Engineering Topics**	**General Education**	**Engineering Design**
	✓		

RELATIONSHIP OF COURSE TO STUDENT OUTCOMES:

Student Outcomes		Course Outcomes
a.	An ability to apply knowledge of mathematics, science, and engineering.	
b.	An ability to design and conduct experiments, analyze and interpret data.	
c.	An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.	
d.	An ability to function on multi-disciplinary teams.	✓
e.	An ability to identify, formulate, and solve engineering problems.	✓
f.	An understanding of professional and ethical responsibility.	
g.	An ability to communicate effectively.	
h.	The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	
i.	A recognition of the need for, and an ability to engage in life-long learning.	
j.	A knowledge of contemporary issues within and outside the electrical engineering profession.	
k.	An ability to use the techniques, skills, and modern engineering tools necessary for electrical engineering practice.	