CC 411 – INTRODUCTION TO MICROPROCESSORS

CREDIT HOURS

3 Hours

CONTACT HOURS (Hours/week)

Lecture: 2; Tutorial: 2; Lab: 2

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 will be 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.
- 7th week exam.
- Virtual memory Management.
- Memory Interface.
- DRAM.
- Input/output interface.
- 12th week exam.
- Interrupts and exception processing.

- The 486 and Pentium microprocessors family.
- Revision.

CONTRIBUTION OF COURSE TO MEET THE REQUIREMENTS OF CRITERION 5:

Professional component Content			
Math and Basic Sciences	**Engineering Topics**	**General Education**	**Other**
	✓		

RELATIONSHIP OF COURSE TO STUDENT OUTCOMES:

Student Outcomes		Course aspects
A	An ability to apply knowledge of mathematics, science, and engineering	
B	An ability to design and conduct experiments, analyze and interpret data.	b_1 b_2 b_3 b_4
C	An ability to design a system, component, or process to meet desired needs within realistic constraints such as economics, environmental, social, political, ethical, health, and safety, manufacturability, and sustainability	c_1 c_2 c_3
D	An ability to function on multi-disciplinary teams.	d_1 d_2 d_3 d_4
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 social content	
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.	k