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Department of Computer Engineering	
Microcontroller and Digital Electronics Lab. (66498)	
Total Credits	**1**
major compulsory	
Prerequisites	P1 : Microcontroller (66428) OR Digital Electronic Circuits II (63430)

Course Contents

Microcontrollers interfacing and microprocessor programming and interfacing. This includes interfacing and controlling peripherals such as LED matrix, LCD, DC and Stepper motors.

	Intended Learning Outcomes (ILO's)	Student Outcomes (SO's)	Contribution
1	The ability to program, to interface, and to use the PIC microcontrollers and the Intel microprocessor with the different types of peripherals.	B	70 %
2	The ability to work with the different types of tools to speed up the development cycle. (Design, simulation, implementation, programming)	C	10 %
3	The ability to test the hardware and software interface so that the system can work correctly.	C	20 %

Textbook and/ or Refrences

Lab Experiments, Different IC Datasheets, Books and materials used in the Prerequisite course.

Assessment Criteria	Percent (%)
Laboratory Work	60 %
Final Exam	40 %

Course Plan

Week	Topic
1	PIC boot loader and basic digital interfacing (implement an 8-bit counter)
2	Interfacing a keypad and seven segment display
3	Analog to digital converters and LCD
4+5	Frequency Detector
6	DC motor and PWM
7+8	Serial EEPROM
9	Using the 8255 with microprocessor
10	LED matrix
11	DAC
12	Handshaking
13+14	Stepper motor
15+16	Implementing a positioner system