

Department of Computer Engineering			
Microprocessor for Mechatronics I (66374)			
Total Credits	3		
major compulsory			
Prerequisites	P1 : Digital Circuit Design I (66221) OR Digital Logic (67412)		
Course Contents			
Introduction to Microprocessor and Computer Systems, Microprocessor Architecture, Addressing Modes, Data Transfer Instructions, Arithmetic and Logic Instructions, Program control Instructions, Hardware Specifications			
Intended Learning Outcomes (ILO's)		Student Outcomes (SO's)	Contribution
1	Fundamental knowledge in microprocessor system including memory and I/O interfacing.	C	20 %
2	Acquire the knowledge in the instruction set architecture of microprocessors and assembly programming using Intel microprocessors as an example.	E	50 %
3	The ability to program microprocessors using Assembly and C languages.	K	30 %
Textbook and/ or References			
The Intel Microprocessors, Barry B. Brey			
Assessment Criteria		Percent (%)	
First Exam		20 %	
Second Exam		20 %	
Homeworks		10 %	
Final Exam		50 %	
Course Plan			
Week	Topic		
1- 3	Introduction to Microprocessor and Computer Systems (Historical Background, Personal Computer, Number Systems (Review), Data Formats, ASCII code Review)		
4- 6	Microprocessor Architecture (Internal Microprocessor Architecture, 8088/86 Architecture, 8088/86 Registers, Address and Data Buses, Control Signals, Structure of a Microprocessor System: Memory and I/O, Segments: Data, Code, Stack and Extra Segments)		
7- 10	Addressing Modes (Instruction Set Format, Operations and Operands, (Zero, One, Two, and Three Operand Instructions), Overview of 8088/86 Instruction Set, Immediate Addressing, Direct Register Addressing, Indirect Addressing, Relative Addressing, Base Plus Indexed Addressing)		
11- 12	Arithmetic and Logic Instructions (Arithmetic Instructions: (Add, Subtract), Multiply and Divide, Flags, Logic Instructions, Decimal Instructions).		
13- 14	Data Transfer Instructions (MOV Instruction, Stack Instructions, I/O instructions, String Instructions).		
15- 16	Program control Instructions (Unconditional Jump, Conditional Jumps, Call and Return, Software Interrupts).		