

SCHOOL OF ENGINEERING AND TECHNOLOGY		ELECTRICAL AND ELECTRONICS ENGINEERING DEPARTMENT	OPERATIONAL FROM (2013-2014)	FOR STUDENTS ADMITTED STARTING (2012-2013)
1	Course number		EEE319	
2	Course Title		MICROPROCESSORS (DC)	
3	Credits		5	
4	Contact Hours (L-T-P)		3-1-2	
5	Course Objective		To provide students with: 1. a thorough understanding of popular 8-bit microprocessor 2. an understanding of the architectural aspects, addressing modes and assembly language programming 3. ability to interface some popular support devices to build simple useful projects 4. knowledge of hardware and software features of microcontroller vis-a-vis microprocessor	
6	Course Outcomes		On successful completion of this course students will be able to: 1. know the basic blocks of micro-processor 2. classify the various machine cycles 3. differentiate the special purpose registers from general purpose ones 4. choose different addressing modes 5. classify various instructions 6. employ and explore alternative instructions 7. implement simple assembly language programmes for 8085 8. practice forming control words and initializing on-board interfacing chips 9. choose and employ interfacing chips with 8085 processor 10. categorize various data transfer techniques 11. explore use of various flag bits 12. examine and apply the interrupts and their priority 13. design different types of buses for a micro-processor system 14. know the basics of 8086 microprocessor and 8051 microcontroller	
7	Outline syllabus:			
7.01	EEE319.A	Unit A	Introduction and Architecture of 8085 Microprocessor	
7.02	EEE319.A1	Unit A Topic 1	History of computers, memory devices: semiconductor memory organization.	
7.03	EEE319.A2	Unit A Topic 2	8-bit Microprocessor (8085): architecture and pin description, tri-state buffer.	
7.04	EEE319.A3	Unit A Topic 3	Timing and control unit, register set, op code fetch machine cycle, memory and I/O read and write cycles, machine cycle.	
7.05	EEE319.B	Unit B	Instruction Set and Assembly Language Programming	

7.06	EEE319.B1	Unit B Topic 1	Addressing modes; data transfer, arithmetic, logical, branch, stack and machine control groups of instruction set.
7.07	EEE319.B2	Unit B Topic 2	Assembly language programming.
7.08	EEE319.B3	Unit B Topic 3	Assembler directives, subroutines, parameter passing to subroutines.
7.09	EEE319.C	Unit C	Interfacing Techniques
7.1	EEE319.C1	Unit C Topic 1	Interfacing memory chips, address allocation technique and decoding.
7.11	EEE319.C2	Unit C Topic 2	Interfacing of I/O devices, memory mapped and isolated I/O structure.
7.12	EEE319.C3	Unit C Topic 3	Input/output techniques: CPU initiated unconditional and conditional I/O transfer, device initiated interrupt I/O transfer.
7.13	EEE319.D	Unit D	Programmable Interfacing Devices
7.14	EEE319.D1	Unit D Topic 1	Programmable Peripheral Interface (PPI): Intel 8255, Pin configuration, internal structure of a port bit, modes of operation, bit SET/RESET feature, Programming, ADC and DAC chips and their interfacing.
7.15	EEE319.D2	Unit D Topic 2	Programmable Interface Timer: Intel 8253, Pin configuration, internal block diagram of counter, modes of operation, counter read methods, programming, READ-BACK command of Intel 8254.
7.16	EEE319.D3	Unit D Topic 3	Programmable Interrupt Controller (PIC): Intel 8259, Pin configuration, initialization and operation control words of various operating modes and programming.
7.17	EEE319.E	Unit E	Interrupts and Advanced Processors
7.18	EEE319.E1	Unit E Topic 1	Interrupt structure if 8085, processing of vectored and non-vectored interrupts, interrupt priority.
7.19	EEE319.E2	Unit E Topic 2	Introduction to 8086 microprocessor.
7.20	EEE319.E3	Unit E Topic 3	Introduction to 8051 microcontroller.
7.21	EEE319.L01	Lab expt. 1	Write a program to ADD & SUB two numbers using Registers.
7.22	EEE319.L02	Lab expt. 2	Write a program to ADD& SUB two 8-bit numbers using memory location.
7.23	EEE319.L03	Lab expt. 3	Write a program to Add two 16-Bit numbers.
7.24	EEE319.L04	Lab expt. 4	Write a program to SWAP the contents of memory locations.
7.25	EEE319.L05	Lab expt. 5	Write a program to transfer 05 bytes of data from one memory to another memory block.
7.26	EEE319.L06	Lab expt. 6	Write a program to add two 8-bit numbers, output more than 8-bit using memory (Carry).
7.27	EEE319.L07	Lab expt. 7	Write a program to decimal ADD/ SUB of two 8-bit numbers using memory location.
7.28	EEE319.L08	Lab expt. 8	(a)Write a program to find out the smallest number between two numbers. (b) Write a program to find out the smallest number in array of 10 data.
7.29	EEE319.L09	Lab expt. 9	(a)Write a program to find out the largest number between two numbers. (b) Write a program to find out the smallest number in array of

			10 data.
7.30	EEE319.L10	Lab expt. 10	Write a program to multiply two numbers using repeated addition using Register/Memory.
7.31	EEE319.L11	Lab expt. 11	Write a program to find out square of a given number.
8	Course Evaluation		
8.1	Course work: 30 marks		
8.11	Attendance	None	
8.12	Homework	10 assignments, no weight	
8.13	Quizzes	7 best quizzes (based on assignments); 20 marks	
8.14	labs	Evaluation of work done on each lab turn in the lab notebook and feedback from oral quiz about the work done that day. Zero, if the student is absent. 0.75N best marks out of N such evaluations: 10 marks	
8.15	Presentations	None	
8.16	Any other	None	
8.2	MTE	20 marks	
8.3	End-term examination: 50 marks		
9	References		
9.1	Text book	R.S. Gaonkar, 'Microprocessor Architecture Programming and Application', Wiley Eastern Ltd., New Delhi, 1995.	
9.2	Other references	1. William Kleitz, 'Microprocessor and Micro Controller Fundamental of 8085 and 8051 Hardware and Software', Pearson Education, 1998. 2. Muhammad Ali Mazidi& Janice GilliMazidi, 'The 8051 Micro Controller and Embedded Systems', Pearson Education, 5th Indian reprint, 2003.	
9.3	Software	MASM	

Mapping of Outcomes vs Topics

Outcome no. → Syllabus topic↓	1	2	3	4	5	6	7	8	9	10	11	12	13	14
EEE319.A1	X													
EEE319.A2	X													
EEE319.A3		X	X											
EEE319.B1				X	X	X								
EEE319.B2					X	X								
EEE319.B3							X							
EEE319.C1								X	X					
EEE319.C2								X	X					
EEE319.C3										X				
EEE319.D1								X	X		X			
EEE319.D2								X	X		X			
EEE319.D3								X	X		X			
EEE319.E1												X		
EEE319.E2													X	
EEE319.E3														X