



National Institute of Technology Meghalaya
An Institute of National Importance

CURRICULUM

Programme	Bachelor of Technology in Computer Science and Engineering	Year of Regulation	2019-20
Department	Computer Science and Engineering	Semester	V

Course Code	Course Name	Credit Structure				Marks Distribution			
		L	T	P	C	INT	MID	END	Total
CS 311	Microprocessors and Interfacing	3	1	0	4	50	50	100	200

Course Objectives	Course Outcomes	CO1		CO2		CO3		CO4		CO5		CO6	
		Introduce students about the architecture, internal organization of an 8-bit (8085) processor in detail. This subject also deals about interfacing an external device with the processors/ controllers. Introduce students to programming in assembly language.	Recall and apply a basic concept of digital fundamentals to microprocessor based personal computer system. Identify a detailed software & hardware structure of the 8085 Microprocessor. Illustrate how the different peripherals (8255, 8253 etc.) are interfaced with Microprocessor. Distinguish and analyse the properties of different Microprocessors & Microcontrollers. Analyse the data transfer information through serial & parallel ports. Design and evaluate assembly language programs and the machine code that will provide solutions real-world problems.										

No.	COs	Mapping with Program Outcomes (POs)												Mapping with PSOs		
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	CO1	3	1	1	1	0	0	0	0	0	0	0	1	1	2	2
2	CO2	3	1	1	0	1	0	0	0	0	0	0	0	1	1	3
3	CO3	3	3	3	2	3	0	0	0	0	0	0	0	1	1	3
4	CO4	3	1	3	2	2	0	0	0	0	0	0	0	1	1	3
5	CO5	3	2	3	1	1	0	0	0	0	0	0	0	1	1	3
6	CO6	3	3	3	2	2	0	0	0	0	0	0	0	1	2	2

SYLLABUS

No.	Content	Hours	COs
I	Introduction to Computer architecture, Architecture of a typical Microprocessor, Bus configuration, The CPU module, The MPU and The microcontroller. Timing diagram, Memory Interfacing, Interfacing input output- port, Interrupt & interrupt handling, Serial & parallel data transfer scheme, Programmed & interrupt driven data transfer, Direct memory access, Programmable peripheral devices, Programmable interval timer, Analog input-output using AD & DA converter	17	CO1, CO2, CO3, CO4
II	Introduction to assembly language & machine language programming, Instruction set of typical microprocessor (e.g. 8085), Subroutine & stack.	10	CO1, CO6
III	Basic Interfacing Concepts, 8255 Programmable Peripheral Interface, Interfacing Display, Keyboards, 8279 Programmable Keyboard/Display Interface, 8253/54 Programmable Timer, DMA Controller, Interrupt Controller, ADC And DAC Interfacing.	15	CO5, CO5
IV	8086 Internal Architecture, Memory Segmentation, Addressing Modes, Basic Bus Timing During Read And Write Operation.	06	CO1, CO4
Total Hours		48	

Essential Readings:

1. Gaonkar R. S., "Microprocessor Architecture, Programming and Applications with 8085", 5th ed., 2000, Penram International.
2. Douglas Hall And S S S P Rao, "Microprocessor and Interfacing", 3rd ed., 2012, Tata McGraw-Hill.
3. Ajay wadhwa, "microprocessor 8085: architecture, programming, and interfacing", 1st ed., 2010, PHI Learning.

Supplementary Readings:

1. Ram B., "Fundamental of Microprocessor & Microcomputers", 6th ed., 2003, Dhanpat Rai Publications.
2. Leventhal Lance, "Introduction to Microprocessor - Software, Hardware and Programming", 5th ed., 1992, PHI.
3. Barry B. Brey, "The Intel Microprocessor: Architecture, Programming, and Interfacing", 8th ed., 2008, Pearson.