School of Electronics Engineering

Kalinga Institute of Industrial Technology
Deemed To Be University

Lesson Plan

Department/program	E&TC, E&CSc, CS&SE
Subject Code	EC 2020
Subject Name & Credit	Microprocessors, Microcontrollers & Interfacing (Credit – 4)
Semester	4th Semester

Unit No.	Unit Name	Topic / Content					No. of Lectures Per Unit
		Sub Unit	No. of Lecture	Delivery Method			
				P	D	L	
1	Introduction	Review of Digital Electronics	2			2	2
		Applications of MP and its versatility					
		Basic MP and a basic MP based system					
		Tristate concept & Bus structure					
		Evolution of MPs					
2	Outline of a 8 bit Processor	8085 MP Architecture	2			2	4
		Registers					
		Flags					
		Stack & stack pointer					
		Timing & Control unit					
		8085 Pins & Signals - Different Groups - Data & Address Bus - Other Control signals	2			2	
3	Addressing Modes, Instruction Set Of 8085	Sample one byte, two byte and three byte Instructions. Timing Diagram for the above.	1			2	5
		Memory mapped and I/O mapped I/O concept	1				
		8085 Addressing Modes	1			1	
		8085 Instructions and Sample Problems	2			2	

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				P	**D**	**L**	
4	8086 (16 bit Microprocessor**)**	Architecture	2			2	9
		Pins & signals	2			2	
		Minimum and maximum mode configuration	2			2	
		Read & write cycle	1			1	
		Memory Interfacing	2			2	
5	8086 Instructions	Major group of Instructions (Data Transfer, I/O instn. Address object, Flag Register, Arithmetic, Logical, String, branching, Flag manipulation & processor control instructions) and sample programs.	8			8	8
	Mid semester exam						13.01.2023
6	8086 Interrupts	Interrupts IVT, Classification of interrupts	3			3	3
7	Multiprocessor Configuration	Loosely coupled Configuration Tightly coupled Configuration	1			1	1
8	Interfacing Chips	Programmable peripheral Interface (8255) • Concept of ports & its Address • Control word format, I/O mode, BSR mode	3			3	9
		Programmable Interrupt controller (8259) • Internal Architecture • Sequence of operation • Command words	3			3	
		Serial Communication, brief idea of Async & Sync serial communication, framing RS-232C.	3			3	

		Brief working Principle of (8251) USART • Mode word & Command word					

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		Sub Unit	No. of Lecture	Delivery Method			
				P	D	L	
9	8051 Family of Microcontroller	Introduction, Overview of 8051 family	1			1	9
		Memory organization • Program memory • Data memory, Register Banks & SFRs • Bit addressable RAM	2			2	
		Pins and signals Addressing Modes	1 1			1 1	
		Timers, Counters	2			2	
		Serial communication	2			2	
	End Semester Exam						08.05.2023

Text Book:

1) Advanced Microprocessor and Peripherals - Architecture, Programming and Interfacing by A. K. Ray and K. M. Bhurchandi - McGraw Hill Eduction Pvt Ltd - 3rd Edition.

Reference Book:

1) Microprocessor Architecture, Programming and Applications with the 8085 – Ramesh S. Goankar – Penram International Publishing (India)

2) Microprocessors & Microcomputer based System Design - Md. Rafiquzzaman, 2nd Edition

3) Microprocessors and Interfacing, Programming & Hardware - Douglas V. Hall, McGraw Hill Education Pvt Ltd., 3rd Edition

4) Microcontroller Theory & Applications - Deshmukh - McGraw Hill Eduction Pvt Ltd.

5) 8051 Microcontroller - Hardware, Software & Applications - V Udayshankara & M Mallikarjunswamy - TMH - 1st Edition.