GOVERNMENT POLYTECHNIC, SAMBALPUR, RENGALI

DEPARTMENT OF E&TC ENGINEERING

LESSON PLAN

SUBJECT- MICROPROCESSOR & MICROCONTROLLER (TH-3)
SEMESTER-4TH

NAME OF THE FACULTY- MS. LOPAMUDRA BHOI

TOTAL NO. OF PERIODS-75(5/W)

UNIT	DATE	PERIOD	TOPICS TO BE COVERED
1	3rd week of March,2022		**Microprocessor (Architecture and Programming-8085-8-bit)**
		1	1.1 Introduction to Microprocessor and Microcomputer & distinguish between them.
		2	1.2 Concept of Address bus, Data bus, Control bus & System Bus
		3	1.3 General Bus structure Block diagram
		4	1.4 Basic Architecture of 8085 (8 bit) Microprocessor
		5	1.5 Signal Description (Pin diagram) of 8085 Microprocessor
		6	1.6 Register Organizations, Distinguish between SPR & GPR, Timing & Control Module
		7	Stack, Stack pointer &Stack top
		8	Interrupts:-8085 Interrupts, Masking of Interrupt(SIM,RIM)
		9	Previous year questions discussion & assignments.
2	1st week of April,2022		**Instruction Set and Assembly Language Programming**
		1	Addressing data & Differentiate between one-byte, two-byte &three-byte instructions with examples
		2	Addressing modes in instructions with suitable examples.
		3	Instruction Set of 8085(Data Transfer, Arithmetic, Logical, Branching, Stack& I/O , Machine Control)
		4	Simple Assembly Language Programming of 8085
		4.a	Simple Addition & Subtraction
		4.b	Logic Operations (AND, OR, Complement 1's & 2's) & Masking of bits
		4.c	Counters & Time delay (Single Register, Register Pair, More than Two Register)
		4.d	Looping, Counting & Indexing (Call/JMP etc)
		4.e	Stack & Subroutine programs
		4.f	Code conversion, BCD Arithmetic & 16 Bit data Operation, Block Transfer.
		4.g	Compare between two numbers
		4.h	Array Handling (Largest number & smallest number in the array)
		5	Memory & I/O Addressing
		6	Previous year questions discussion & assignments.
3	4th week of April,2022		**TIMING DIAGRAMS**
		1	Define opcode, operand, T-State, Fetch cycle, Machine Cycle, Instruction cycle & discuss the concept of timing diagram.
		2	Draw timing diagram for memory read, memory write, I/O read, I/O write machine cycle
		3	Draw a neat sketch for the timing diagram for 8085 instruction (MOV, MVI, LDA instruction).
		4	Previous year questions discussion & assignments.
4	2nd week of May,2022		**Microprocessor Based System Development Aids** .
		1	Concept of interfacing
		2	Define Mapping &Data transfer mechanisms - Memory mapping & I/O Mapping
		3	Concept of Memory Interfacing:- Interfacing EPROM & RAM Memories

		4	Concept of Address decoding for I/O devices
		5	Programmable Peripheral Interface: 8255
		6	ADC & DAC with Interfacing.
		7	Interfacing Seven Segment Displays
		8	Generate square waves on all lines of 8255
		9	Design Interface a traffic light control system using 8255.
		10	Design interface for stepper motor control using 8255
		11	Basic concept of other Interfacing DMA controller, USART
		12	Previous year questions discussion & assignments
5	1st week of June,2022		**Microprocessor (Architecture and Programming-8086-16 bit)**
		1	Register Organisation of 8086
		2	Internal architecture of 8086
		3	Signal Description of 8086
		4	General Bus Operation& Physical Memory Organisation
		5	Minimum Mode &Timings
		6	Maximum Mode &Timings
		7	Interrupts and Interrupt Service Routines, Interrupt Cycle, Non-Maskable Interrupt, Maskable Interrupt
		8	8086 Instruction Set & Programming: Addressing Modes, Instruction Set, Assembler Directives and Operators,
		9	Simple Assembly language programming using 8086 instructions
		10	Previous year questions discussion & assignments
6	3rd week of June,2022		**Microcontroller (Architecture and Programming-8 bit)**
		1	Distinguish between Microprocessor & Microcontroller
		2	8 bit & 16 bit microcontroller
		3	CISC & RISC processor
		4	Architecture of 8051Microcontroller
		5	Signal Description of 8051 Microcontrollers
		6	Memory Organisation-RAM structure, SFR
		7	Registers, timers, interrupts of 8051Microcontrollers
		8	Addressing Modes of 8051
		9	Simple 8051 Assembly Language Programming Arithmetic & Logic Instructions , JUMP, LOOP, CALL Instructions, I/O Port Programming
		10	Interrupts, Timer & Counters
		11	Serial Communication
		12	Microcontroller Interrupts and Interfacing to 8255
		13	Previous year questions discussion & assignments