LESSON PLAN

Name of the faculty:
Discipline : Electrical Engg.

Semester : 5th

Subject : Programmable logic controllers and Microcontrollers

Lesson Plan Duration : 15 weeks **From October2021)**

Work load (Lecture/Practical) per week : Lectures-05, Practicals-02 hrs per group

Week	Theory		Practical	
	Lecture day	**Topic**	**Practical day**	**Topic**
1st	1	What is PLC, concept of PLC	1st	Components/ subcomponents ofa PLC and learning functions of different modules of a PLC system
	2	Building blocks of PLC		
	3	Functions of various blocks of PLC		
	4	Limitations of relays, Advantages of PLCs over electromagnetic relays		
	5	Revision and class test		
2nd	6	Different programming languages,	2nd	Practical steps in programming aPLC using hand held programmer
	7	PLC manufacturers and applications of PLC		
	8	Basic operation of PLC-		
	9	Principles of PLC		
	10	Revision and class test		
3rd	11	Architectural details of Processor-Part-I	3rd	Practical steps in programming aPLC using computer interfacing
	12	Architectural details of Processor-Part-II		
	13	Memory Structures		
	14	Input/output structures		
	15	Revision and class test		
4th	16	Programming Terminals of PLC	4th	Introduction to step 5programming language, ladder diagram concepts, instruction listsyntax
	17	Power supply to PLC		
	18	Basic instructions for latch		
	19	Master control self holding		

		relays		
	20	Revision and class test		
5th	21	Timer instructions-ON and OFF delay	5th	Basic logic operations, AND, Or, NOT functions
	22	Retentive timers, resetting of timers		
	23	Counter instructions like up counter, down counter, resetting of counters		
	24	Arithmetic Instructions (ADD,SUB,DIV,MUL etc.)		
	25	Revision and class test		
6th	26	MOV instruction, RTC (Real Time Clock function)	6th	Logic control systems with time response as applied to clamping operation
	27	Comparison instructions like equal, not equal, greater, greater than equal, less than, less than equal		
	28	Programming on Basic instructions		
	29	Programming on Timer instructions		
	30	Revision and class test		
7th	31	Programming on Counter instructions	7th	Sequence control system in lifting a device for packaging and counting
	32	Programming on Sequencer instructions		
	33	Programming on comparison instructions		
	34	Revision of Ladder diagram Programming		
	35	Revision and class test		
8th	36	Assembly line, Packaging, Process control	8th	Use of PLC for Door Bell operation
	37	Car parking, Doorbell operation, Traffic light control		
	38	Microwave oven, Washing machine, Motor in forward and reverse direction		
	39	Star delta, DOL Starter, paint industry ,filling of bottles, room Automation		
	40	Revision and class test		

9th	41	Microcontroller -Overview	9th	Use of PLC for Traffic light system
	42	Block diagram and architecture of Microcontroller		
	43	Overview of MCS-51		
	44	8051 -Pin details		
	45	Revision and class test		
10th	46	Input port structures	10th	Use of PLC for Packing process control
	47	Output port structures		
	48	Memory organisation		
	49	Special function registers		
	50	Revision and class test		
11th	51	Revision of Microcontroller	11th	Use of PLC for Car parking system
	52	Instruction set of MCS-51		
	53	Addressing modes		
	54	Timer operation		
	55	Revision and class test		
12th	56	Serial port operation and communication	12th	Familiarization with the study of architecture of 8085 kit, basic subsystems and input output connectors, function keys
	57	Interrupts and its types		
	58	Assemblers operations & compilers		
	59	Assembler directives		
	60	Revision and class test		
13th	61	keypad interfacing	13th	Familiarization of Microcontroller8051 kit
	62	7- segment interface, LCD		
	63	Stepper motor interfacing		
	64	A/D, D/A interfacing		
	65	Revision and class test		
14th	66	RTC interfacing	14th	Testing of general input/outputon microcontroller board
	67	Introduction of PIC Micro controllers		
	68	Features of PIC 16C84		
	69	Architecture of PIC 16C84		
	70	Revision and class test		
15th	71	Applications of microcontrollers	15th	Development of Electrical, Instrumentation
	72	Radio control system		
	73	Revision		
	74	Revision and class test		

	75	Discussion of previous year question papers		applicationsusing 8051 microcontroller