Lesson Plan (PLC & MICROCONTROLLER)

Name of Faculty **Mr. Jasbir**

Discipline **Electrical Engineering**

Semester **6th** **:**

Subject **PLC &Microcontrollers**

Lesson plan duration **15 weeks (from January 18 to April 18)**

Work Load(Lecture/Practical) per week : Lectures-05, Practicals-03

Week	Theory		Practical	
	Lecture Day	Topic(including assignment/test)	Practical day	Topic
1st	1st (Unit-1)	Introduction to PLC,What is PLC, concept of PLC	1st	Components/sub-components of a PLC, Learning functions of different modules of a PLC system
	2st	Building blocks of PLC, Functions of various blocks,		
	3rd	limitations of relays. Advantages of PLCs over electromagnetic relays.		
	4th	Different programming languages, PLC manufacturer etc.		
2nd	5th	Working of PLC	2nd	Practical steps in programming a PLC (a) using a Hand held programmer (b) using computer interface
	6th	Basic operation and principles of PLC		
	7th(Unit-II)	Architectural details processor		
	8th	Memory structures, I/O structure,Programming terminal, power supply		
3rd	9th	Instruction Set,Basic instructions like latch, master control self holding relays	3rd	Introduction to step 5 programming language, ladder diagram concepts, instruction list syntax
	10th	Timer instruction like retentive timers, resetting of timers.		
	11th	Counter instructions like up counter, down counter, resetting of counters		
	12th	Arithmetic Instructions (ADD,SUB,DIV,MUL etc.) , MOV instruction , RTC(Real Time Clock Function)		
	13th	Comparison instructions like equal, not equal, greater, greater than equal, less than, less than equal	4th	Basic logic operations, AND, OR, NOT functions
4th	14th	Ladder Diagram Programming		
	15th	Programming based on basic instructions		
	16th	timer, counter, sequencer, and comparison instructions using ladder program.		

5th	17th	Applications of PLCs	5th	Logic control systems with time response as applied to clamping operation
	18th	Assembly - Packaging - Process controls - Car parking		
	19th	Doorbell operation - Traffic light control - Microwave Oven - Washing machine		
	20th	Motor in forward and reverse direction - Star-Delta, DOL Starters - Paint Industry - Filling of Bottles - Room Automation		
6th	21th	Micro Controller Series (MCS)-51 Over View	6th	Sequence control system e.g. in lifting a device for packaging and counting
		Pin details		
	22th	I/o Port structure		
	23th(unit-3)	Memory Organisation		
	24th	Special function registers		
7th	25th	Instruction Set Addressing Modes	7th	Use of PLC for an application(teacher may decide)
	26th	Timer operation		
	27th	Serial Port operation		
	28th	Interrupts		
8th	29th	Assembly language programming	8th	Familiarization with a study of Architecture of 8085 kit, basic sub systems and input output connectors, functions keys on micro controllers kit
	30th	Assemblers		
	31th	Compilers		
	32th	Assembler Directives		
9th	33th	Design and Interface	9th	Familiarization of Micro Controllers (8051) kit
	34th	Examples like: keypad interface		
	35th	7- segment interface		
	36th	LCD		
	37th	stepper motor	10th	Testing of general input/output on Micro controller board
	38th (unit-4)	A/D, D/A,		
	39th	RTC interface.		
10th	40th	Introduction of PIC Micro controllers		
11th	41th	Application of Micro controllers	11th	Development of Electrical , Instrumentation applications using 8051 micro-controller
	42th	• 3rd assignment will be given		
	43th	• Previous state boards question will be carried out, any other left out topic		
	44th	• 3rd sessional test		
12th	45th	• Evaluation of 3rd test	12th	Evaluation of above practicals.
	46th	• Display/analysis of 3rd sessional test		

	47th	• Remedial will be taken if any shortcomings found		
	48th	• Seminal/group discussion as per evaluation scheme		
13th	49th	• -do-	13th	Revision of above practicals for left out students if any.
	50th	• -do-		
	51th	• -do-		
	52th			
14th	53th	• -do-	14th	Viva-voce/preparation of practical sessional marks.
	54th	• -do-		
	55th	• -do-		
	56th	• Preparation of sessionals, practical award etc.		
15th	57th	• -do-	15th	Viva-voce/preparation of practical sessional marks.
	58th	• -do-		
	59th	• -do-		
	60th	• -do-		