LESSON PLAN

Name of Faculty: Sh. Vijay Kumar Sharma			
Electrical Engineering			
4th sem			
Programmable logic controllers and Microcontrollers			
from 15/01/2024 to 30/06/2024			
Week	**Theory/Practical- 3/4**		
	Topic	**Practical day**	**Topic**
1st	Fundamentals of PLC Introduction,	1st	1. Introduction to PLC building blocks and Ladder Programming.
	Definition and advantage;		
	Building blocks of PLC: CPU, Memory organization,		
2nd	Input- output modules (discrete and analog), Specialty I/O Modules, Power supply; I/O module selection criteria;	2nd	2. Installation and programming using Open PLC.
	Interfacing different I/O devices with appropriate I/O modules		
	Revision of Unit I		
3rd	Class test No.1	3rd	3. Logic operations in PLC using ladder language e.g. AND, OR, NOT etc.
	PLC Instructions and Programming,		
	PLC programming Instructions: Relay type instructions,		
4th	Timer instructions: On delay, off delay, retentive, counter instructions:	4th	4. Timers and Counters instructions in PLC using ladder language.
	Up, Down, High speed, Logical instructions		
	Comparison Instructions, Data handling Instructions,		

5th	Simple Programming examples using ladder logic: Arithmetic instructions. Language based on relay, timer counter, Logical, comparison, arithmetic and data handling instructions.	5th	5. Sequence control system e.g. in lifting a device for packaging and counting.
6th	Class test No.02 Applications of PLC PLC Based Applications:	6th	6. Use of PLC in any two applications (teacher may decide): a) Traffic Lights System b) Doorbell Operation c) Home Automation d) Sorting of Objects
7th	Motor sequence control, Motor in forward and reverse direction Star Delta, DOL Starters Traffic light control, , Elevator control, Conveyor system,	7th	7. Demonstration and comparison of various 8051/8052 microcontrollers.
8th	Stepper motor control, packaging etc. Class test no.03 Architecture of Microcontroller 8051	8th	8. Introduction to 8051 programming using C.

9th	Difference between micro processor and micro controller, Block diagram of 8051, function of each block,		9. Testing of GPIO on Micro controller board using C
10th	Pin diagram, function of each pin Concept of Internal memory and External memory (RAM and ROM), Internal RAM structure, Reset and clock circuit, Various registers and SFRs of 8051	10th	10. Interfacing of 7 segment LED with 8051 using C sensors:
11th	Class Test No 04 Microcontroller Instruction Programming Instruction set	11th	. 11. Interfacing of 4x3/4x4 Keypad with 8051 using C.
12th	Addressing modes: Timer operation, Serial Port operation, interrupts Data Transfer operations,	12th	12. Any three application circuits using 8051/8052 (teacher may decide): a) Car Parking with Counter b) Temperature controlled Fan c) RTC based digital clock d) Agriculture Automation using Humidity, Soil Moisture and Temperature
13th	Input/output operations. Design and Interface: keypad interface, 7- segment interface, LCD, stepper motor; applications.	13th	File Checking and Viva Voice
14th	Class Test No.05 Revision of PLC Revision of Microcontroller 8051	14th	File Checking and Viva Voice
15th	Discussion of previous year HSBTE question papers Class test Discussion of previous year HSBTE question papers Revision of complete syllabus	15th	Internal Practical viva voce