

SEMESTER <i>Sixth</i>	DEPARTMENT <i>Power Engineering</i>	COURSE TITLE <i>Programmable Logic Controller Lab</i>
COURSE CODE <i>EC608</i>	HOURS: 3 UNITS: 1	COURSE SPECIFICATIONS <i>Practical Content</i>

1. To be Familiar with PLC Hardware:

- Input and Output Wiring.
- Interfacing with Sensors/Actuators.
- Timers and Counters.
- Types of Memories.
- Power Supplies.

2. Programming PLC with Ladder Diagram for Practical Applications:

- The Basic Steps for Building a Program in Ladder Diagram (LD).
- Accessing Memory Addresses using Computer Software.
- Implementing Logic Functions in Ladder Diagram.
 - AND, OR, XOR, and NAND Gates.
- Implementing Latching Circuit with Start and Stop Buttons.
- Boolean Expressions using Ladder Diagram Programs.
- Rising Edge and Falling Edge Program.

3. PLC Applications (such as :)

- Traffic Light Control using On-Delay Timer or Off-Delay Timer Instruction.
- Programming a Parking Garage Controller using Up/Down Counter Instruction.
- Tank Level Control.
- Stepper Motor Control.
- Conveyor Belt Control.
- Mixer for Liquids Control
- Starting of 3- phase motor.
- Star Delta Starter Control.
- Electrical Elevator Control.

References:

1. *Programmable Logic Controllers*, W. Bolton, 4th ed. 2006.
2. *Programmable Logical Controller*, J. W. Wabb, 1994.
3. *Programmable Logic Controller*, C. Simpson, 1993.
4. *PLC and their applications*, A. Crispin, 1990.