III Year-I Semester
(20EE5450) PLC /SCADA
(Open Elective-I)

Int. Marks	Ext. Marks	Total Marks	L	T	P	C
30	70	100	3	-	-	3

Pre- Requisites: None.

Course Objectives

- To introduce history of industrial automation and Basics of PLC.
- To teach programmable logic controllers
- To understand PLC & Programmable logic functions.
- To understand the Process of SCADA

UNIT-I: PROGRAMMABLE LOGIC CONTROLLERS (PLC):
History and development in industrial automation, Basics of PLC, basic operation, architecture, Architecture of PLC, Types of PLC, programming languages, basic components of ladder logic, fundamentals of ladder diagrams.

UNIT–II: File Structure and Addressing Formats:
Input and output data files, bit data file, timer data file, control data file, integer data file, timer and counter instructions, comparison and sequencer instructions.

UNIT –III: PLC Applications:
Switching ON-OFF light, liquid level control, process control, vehicle parking control, bottling plant and traffic light control.

UNIT- IV: Introduction to SCADA:
History of SCADA, Definition, components of SCADA systems, Remote terminal unit (RTU), Discrete control, Analog Control, Master terminal unit (MTU), SCADA interface.

UNIT-V: SCADA Applications:
SCADA software installation, project development, alarm configuration, alarm setup, alarm startup and display, data logging.

Course Outcomes:

S.No	Course Outcomes	BTL
1	Understand the basics of Programmable Logic Controllers.	
2	Design programming based on Ladder Logic.	
3	To understand PLC & Programmable logic functions	
4	To understand the process of SCADA	

Text Books:

1. Gordon Clarke and Deon Reynders, Practical Modern SCADA Protocols, Newnes, 2004.
2. Rajesh Mehra and Vikrant Vij, PLCs and SCADA: Theory and Practice, 1/e, Laxmi Publications,b 2011.

Reference Books:

1. Frankpetruzella D, “programmable logic controllers” Tata MC Graw Hill third edition 2010 Guide for Electrical layout in residential buildings, Indian Standard Institution, IS: 4648-1968.
2. John W webb and Ronald A Reis “ Programmable logic controllers Principles and applications prentice hall india 2003
3. Stuartboyer a, “supervisory control and data acquisition” ISA second edition.