III B. Tech – I Semester

(20EE5450) PLC /SCADA

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

Pre-Requisites:

Preamble: This course enables the students to understand about Operation, Programming and Applications of Industrial Automation.

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

Course Outcomes

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

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.

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, 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.