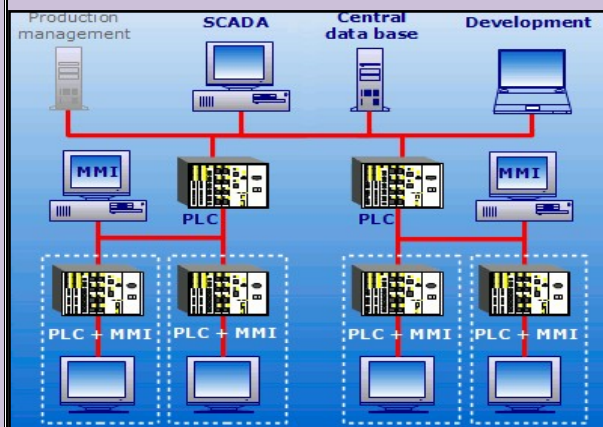




Skill Development program

on

Industrial Automation using PLC, SCADA, HMI & VFD



Organized by

Department of Electrical & Electronics
Engineering

Jointly with

M/s Axis Global Institute of Industrial
Training [AGIT]

Bengaluru-560011, Website: www.agatrg.com

About the Course

The program intends to provide hands on skill to the students in the area of PLC, HMI, SCADA and animation screen development. The program will span for 50 hours during the sixth semester with 5 hours per week. The training will be provided by industrial experts. Students will be having hands on session to have a better understanding of the industrial practices in the area of PLC, HMI and SCADA.

Course description

Programmable Logic Controller (PLC) is an industrial digital computer adapted for the control of manufacturing processes such as robotic devices, drives, illumination control, industrial automation or any activity that requires high reliability control.

Human-Machine Interface (HMI) is a user interface that connects a person to a machine, system, or device particularly for Industrial drives. HMIs communicate with Programmable Logic Controllers (PLCs) and input/output sensors to display information for users and interact accordingly.

Supervisory Control and Data Acquisition (SCADA) is a system of software and hardware elements that allows industrial organizations to control industrial processes locally or at remote locations. SCADA systems are crucial for industrial organizations since they help to maintain efficiency, process data for smarter decisions, and communicate system issues to help mitigate downtime.

Variable-Frequency Drive (VFD) is a type of adjustable-speed drive used in electro-mechanical drive systems to control AC motor speed and torque by varying motor input frequency and voltage parameters.

Course Objective

- ❖ To bridge the gap between the curriculum and the existing industrial practices.
- ❖ Good knowledge of PLC, HMI and SCADA Control.
- ❖ Creation of animation screen development in SCADA.
- ❖ Enhance the confidence levels and acquire better chance of securing a job.

Prerequisites

- ❖ Logic design
- ❖ Switch gear and timers
- ❖ DC and AC drives

Participants: 6th Semester B.E. students
(EEE/ME/ECE)

(Maximum number of participants is limited to 30)

Training certificate: On successful completion of the program, students will be issued certificate jointly by Axis Global Institute of Industrial Training [AGIT] and BNM Institute of Technology.

Course Outcomes

At the end of the course, the students will be able to

- ❖ Understand the concept of industrial automation, PLC, HMI, animation screen development and SCADA.
- ❖ Interface PLC and HMI using RS485 communication protocol
- ❖ Design animation screen development
- ❖ Select appropriate relays for industrial need.
- ❖ Analyze PLC wiring, I/O star delta starter and motor forward-reverse wiring.

Course content (Tentative)

Week no.	Topics to be taught
1	<ul style="list-style-type: none"> ➤ Introduction to Industrial automation ➤ Automation, PLC architecture, Ladder diagram programming
2	<ul style="list-style-type: none"> ➤ Introduction to delta PLC, Latching ➤ Hardware analysis: I/O, communication protocol, timer and counter concept
3	<ul style="list-style-type: none"> ➤ Assessment -I ➤ Delta HMI, screen development
4	<ul style="list-style-type: none"> ➤ Interfacing delta HMI with delta PLC using RS485 communication protocol ➤ SCADA, Animation screen development
5	<ul style="list-style-type: none"> ➤ Animation screen development using Horizontal, vertical digital and analog filling, applications
6	<ul style="list-style-type: none"> ➤ Assessment-II ➤ Speed control techniques of Induction Motors, VFD working
7	<ul style="list-style-type: none"> ➤ Working with VFD, Relay, local and remote wiring and checking ➤ Types and applications of relay, relay logics
8	<ul style="list-style-type: none"> ➤ Working with relay logic checking ➤ Assessment - III
9	<ul style="list-style-type: none"> ➤ PLC wiring, types of I/O, sinking method, sourcing method and designing panel
10	<ul style="list-style-type: none"> ➤ motor forward-reverse wiring ➤ Industrial visit