INTRODUCTION

Programmable Logic controller (PLC) represents a key driver in automation, production & process planning in the manufacturing industry. Many industries of today, including packaging, pharmaceuticals, refineries, mines, machine shops, power plants and food industries use PLC systems for automation of their machinery to produce more, consistently, quickly and efficiently.

Modern PLC systems can be connected to data networks and interfaced with other automation control devices. However, for improvement / modification of the automation system, correct interpretation of the Logics and changes need to be made to the PLC program as and when required.

Keeping this in view, Indian Machine Tool Manufacturers' Association (IMTMA) is organising a 5 day Hands-on training programme in PLC Programming & Networking. This course provides the skills necessary to understand how typical modern industrial PLC programs work, how to make changes to existing programs and how to create small programs from scratch.

FOCUS AREAS

- Basic concepts of PLC
- PLC Block Diagram, function of CPU, I/O interface, internal memory, Input image memory, Output Image
- Memory, PLC SCAN, basic examples of PLC SCAN like start stop logic, etc.
- PLC Hardware: Different types of CPUs, Base racks, Extension racks, power supply modules, etc.
- Discrete Input / output modules, interfacing with field devices, concept of Sourcing & Sinking, I/O addressing
- PLC Programming : Relay based instructions, Timers and counters, Data Manipulation and other advanced instructions
- Analog Input / output modules: interface of Analog Devices with PLC
- Industrial Networking : Device level and Control level
- Advanced PLC Programming concepts for standardization.
- Standardizing the PLC programing methods.
- DATA Read and write on the network components.
- Control of Devices on the network.
- DATA Transfer & Control between PLC's
- Concept of Master & Slave PLC
- **Hands-on practice on SIEMENS PLC's**
- **Hands-on practice on Controlling of a VFD on communication**

KEY TAKE AWAYS

- Insight in to basics of PLC and different types of PLCs, and latest trends in PLC Technology
- Knowledge about PLC programming software : conventional and IEC 61131-3 based
- Detailed understanding of Analog Interface
- Networking: introduction of RS485 based network and Industrial Ethernet based network
- Knowledge about PLC programming standardization for easy debugging by team of engineers in the department.
- Insight on PLC master & Slave Concept
- Insight on PLC networking on protocol communication
- Knowledge on Soft I/O & DATA Transfer (read & Write)
- Hands on experience for implementation.

PARTICIPATION FEE

Rs. 12000/-	USD 450/-
+18% GST	Overseas Participants
IMTMA Members/ Micro Companies/ Individuals/ Educational Institutions / Students/ IMTMA Non Members/ Others	

Group Concession : 10% for 3 to 5 and 20% for 6 and more delegates being nominated from the same company

PARTICIPANT PROFILE

This programme will benefit Managers, Engineers & Middle management personnel involved in the functions of Design & development, R&D, Production, Process planning, Application Engg. Maintenance and other related areas from Machine Tool, Auto & auto ancillaries, Packaging, pharmaceuticals, food processing and other General Engineering industries.

Industrial Engineers involved in planning, design and setup of manufacturing facilities & programming, installing equipment, purchasing or implementing cost reduction and automation programs.

The programme will be totally practical oriented with hands-on practice. Participants would be encouraged to raise questions and solicit feedback from the expert faculty.

FACULTY

This program will be conducted by **Mr. B MURALIDHAR, Industry Expert**

He is an AMIE from Institute of Engineers and Industrial experience for 38 years in Design and Development of electrical/electronic controls for various machine tools at HMT Machine Tools ltd Bangalore. He started his career with the Design of Contactor logic for Cylindrical Grinding machines, Surface grinders, Gear shapers, SPMs, etc. With the evolution of PLCs, Changed contactor logic to PLCs and have used almost all Siemens PLCs available as on date on various machine tools including SSMs & SPMs. In 1985, CNC cylindrical Grinding machine was developed using the Primo S system. Subsequently, many CNC machines like Cylindrical Grinders, Surface grinders, Gear Hobbers, Gear Shappers, SPMs, etc., were developed using CNC systems like Sinumerik, Hinumerik (after HMT got collaboration from Siemens), Siemens 802D, Siemens 810D, Siemens 840D, Fanuc (MD & TD) systems, 828D, 840Dsl and Fanuc0i. Apart from above, Assembly co-ordination, Prove out and commissioning at customer's end were our responsibilities.

Also, he contributed to various developmental activities such as a low-frequency converter for spindle orientation (PWM Technique) during the initial time, Pulse Generator for WEDM using IGBT, and during 2019-20, developed, Servo Manipulator with Force and Weight feedback.

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