

SHORT COURSE

INDUSTRIAL AUTOMATION (PLC) Training

Theory & Hands-On Practical | 2 Months (8 Weeks)

Course at a Glance

Course Name	Industrial Automation (PLC) Training
Duration	2 Months (8 Weeks)
Format	Theory & Hands-On Practical
Start Date	16 th November, 2026
Class Timing	2:00PM-6:00PM Mon-Tue only

Course Objective

By the end of this 2-month course, participants will be able to wire, configure, program, and troubleshoot standard PLC systems, as well as integrate basic HMI (Human Machine Interface) screens.

Course Outline

Week 1	Introduction to Automation & PLC Basics - Industrial automation overview & relay logic - PLC architecture (CPU, I/O, Power Supply) - Memory mapping and the scan cycle - Introduction to programming software
Week 2	Hardware Wiring & Configuration - Sourcing vs. Sinking I/O devices - Digital and Analog I/O modules - Wiring switches, sensors, and contactors - Hardware configuration and communication setup
Week 3	Basics of Ladder Logic (Part 1 & Part 2) - Normally Open (NO) and Normally Closed (NC) contacts - Output coils and latches (Set/Reset) - Interlocking and holding circuits - Basic motor control logic (DOL starters)

Week 4	Timers & Counters / Practical Projects • On-Delay (TON), Off-Delay (TOF), and Retentive Timers • Cascading timers for sequential operations • Up/Down Counters (CTU, CTD) • Practical: Traffic light and conveyor sequence projects
Week 5	Intermediate Instructions • Math operations (ADD, SUB, MUL, DIV) • Comparison instructions (EQU, NEQ, GRT, LES) • Data handling (MOVE blocks) • Shift registers and basic sequencers
Week 6	Analog Signals & Process Control • Understanding analog loops (0-10V, 4-20mA) • Scaling and unscaling analog data in the PLC • Introduction to PID control concepts • Practical: Tank level or temperature control simulation
Week 7	HMI Integration & Networking • Basics of HMI design and navigation • Linking HMI tags to PLC memory addresses • Creating screens, buttons, indicators, and alarms • Overview of industrial protocols (Ethernet/IP, Modbus)
Week 8	Troubleshooting, Documentation & Final Project • Fault finding, forcing I/O, and online monitoring • Program documentation and backup procedures • Safety practices in automation • Final comprehensive automated system project integration • Feedback & Certification