



Fundamentals of **PLC** *Programmable Logic Controllers*

❖ Course Description

PLC is an electronic device used for automation of industrial processes, such as control of machinery on factory assembly lines. Unlike general-purpose computers, the PLC is designed for extended temperature ranges, dirty or dusty conditions, immunity to electrical noise, and resistance to vibration and impact. Programs to control machine operation are typically stored in battery-backed or read-only memory. A PLC is an example of a real time system since output results must be produced in response to input conditions within a bounded time, otherwise miscontrol will result.

In this course, we will be subjected to overview of the industrial control, different kinds of sensors, and overview of the PLCs. Programming, Interfacing, and troubleshooting will also be covered.

❖ Type of Delivery

- Instructor-Led Training
- Seminars

❖ Duration

36 hours

❖ Training Benefits

- Professional Instructor
- Professional Presentations
- Software Simulation
- Software Emulation
- Exam & Final Project
- CEUs certificate for Professional Engineers
- Special discount for IEEE members
- Internationally recognized certificate

❖ Course Objectives

- » Define what is Industrial control
- » Define what PLCs are, and how it could be used?
- » Discuss the benefits of using PLCs
- » State different vendors of PLCs
- » State what makes PLCs different from other controllers
- » Define sensors, actuators, controllers
- » Discuss in detail different kinds of sensors
- » Start programming PLCs

❖ Table of contents

- An Overview of Industrial Control
- Methods and Operation of the Controller
- DC Motors and Drives
- AC Motors and Drives
- Servo Motors & Servomechanisms
- Pressure Systems and Temperature Control
- Flow Control and Level Control Systems
- Analytical and Industrial Instrumentation

- Detection Sensors
- Programmable Logic Controllers
- PLC Programming, Interfacing and Troubleshooting
- Programming PLC Off-Line using ladder programming.
- Motion Control
- Functional Systems

Please refer to course catalogue to see full covered topics.

❖ Target Audiences

- » Automatic Control Engineer
- » Mechanical Engineer
- » Production Engineer
- » Technicians – Workers
- » Engineering Students

❖ Prerequisites

Student should have the following knowledge:

- » Introductory course in Computer systems
- » Logic Gates and Digital design concept
- » Math & Programming

❖ Course certification

Upon successfully completing course assessment, quizzes, final project and exam, you will be eligible to get your internationally recognized certificate. This course is offering CEUs from IEEE and IACET for more information: www.ieee.org/partners

❖ About the Instructor

This course is delivered by **Dr. Eng. Mostafa AbdelKhalik**. He is currently an assistance professor at **Kafrelsheikh University**. He has wide experience of teaching Electronics and Automation Engineering courses in various Universities in Egypt.

www.kfs.edu.eg : www.melhosseini.co.cc

❖ Course References

- Programmable Logic controllers – Principles and Applications, 4th editions, John W. Webb and Ronald A. Reis
- Programmable controllers – Operations and Applications, Ian G. Warnock
- Industrial Control, Andrew Parr
- Programmable controllers, 3rd edition, Thomas A. Hughes, ISA— the instrumentation, systems, and Automation society
- Programmable Logic controllers — an introduction, W. Bolton
- Soft Logic — a guide to using a PC as a Programmable Logic Controllers, Robert S. Carrow
- Programmable Logic controllers and their Engineering Applications, 2nd edition, Alan J Crispin