

Programmable Logic Controller (PLC) Programming

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Learning Made Simple, Visual, and Interactive

The THORS *Programmable Logic Controller (PLC) Programming* course introduces learners to the core programming concepts and languages used in PLC program development. The course also explains programming using Ladder Diagrams (LD), including its elements, logic gate construction, basic program development steps, along with practical applications. Presented in THORS' highly visual and interactive learning format, this course will equip the learner with a foundational knowledge of a PLC and its related automation processes.

Credit Hours **1.5**

Learning Objectives

- 💡 Explain the basic programming concepts used in PLC systems.
- 💡 Identify the different types of PLC programming languages.
- 💡 Recognize the elements of a Ladder Diagram (LD) and their functions.
- 💡 Construct basic logic gates using LD programming.
- 💡 Understand the basic steps involved in developing a PLC program.
- 💡 Apply PLC programming concepts to simple, practical industrial applications.

Table of Contents

I. Programming Logic

- **Programming Concepts**
 - Logic Gates
 - Scan Cycles
 - Control Logic
 - Timers
 - Counters
- **Programming Languages**
 - Ladder Diagram (LD)
 - Function Block Diagram (FBD)

I. Programming Logic (continued)

- Structured Text (ST)
- Sequential Function Chart (SFC)
- Instruction List (IL)

II. Ladder Diagram (LD) Program

- **Elements**
- **Constructing Logic Gates**
 - AND Gate
 - OR Gate
 - NOT Gate

II. Ladder Diagram (LD) Program (continued)

- NAND Gate
- XOR Gate
- XNOR Gate
- **Basic Program Steps**
- **Practical Application**

