

Programmable Logic Controller (PLC) Installation and Troubleshooting

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The THORS *Programmable Logic Controller (PLC) Installation and Troubleshooting* course provides an understanding of the various steps involved in the installation of a PLC system. The course also covers troubleshooting of PLC systems through diagnosing, maintaining, and resolving. Learners are introduced to systematic approaches to identify hardware failures, software problems, and communication errors while implementing maintenance strategies to minimize downtime.

Credit Hours **2.0**

Learning Objectives

- Recognize the various infrastructures and precautions needed during PLC system setup.
- Define the steps involved in the prestart-up and start-up processes.
- Identify the common checkpoints used for diagnosing issues in PLCs.
- Explain the different types of issues that can occur in a PLC system.
- Describe the common tasks involved in PLC maintenance and their role in supporting reliable PLC system operation.

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I. PLC Installation Process

- **PLC System Setup**
 - Infrastructure Setup
 - Site Planning
 - PLC Cabinet
 - Power Source
 - Power Supply Module
 - Input/Output (I/O) Setup
 - Control Relay
 - Emergency Stop Circuit
 - Communication Setup
 - Precautions
 - Leaky Input Correction
 - Inductive Load Suppression
 - Overload Protection
 - Shielding

I. PLC Installation Process (Continued)

- **Prestart-Up**
- **Start-Up**
 - Diagnostic Indicator Inspection
 - System Level LEDs
 - Module Level LEDs
 - Static I/O Verification
 - Control Program Validation
 - Dynamic System Checkout

II. PLC Troubleshooting Process

- **Issue Diagnosis**
- **Issue Types**
 - Component Issues
 - Electrical Issues

II. PLC Troubleshooting Process (Continued)

- **Environmental Issues**
 - Excessive Heat
 - Dust and Contaminants
 - Excessive Electrical Noise
 - Vibration
 - Condensation
- **Communication Issues**
- **Software Issues**
 - Programming Issues
 - Corrupted Memory
- **Maintenance**
 - Internal Maintenance
 - External Maintenance
 - Service Maintenance

