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# Course Essentials:

**Course Title:** Basics of Industrial Automation

## Short Description:

This training introduces the fundamentals of automation, starting with its definition, history, and evolution. It covers essential electrical control concepts, including power and control circuits, sequence logic, self-holding circuits, and SR latches. Learners are then introduced to Programmable Logic Controllers (PLCs), exploring their purpose, hardware components, I/O addressing, and the IEC 61131-3 standard for programming languages. The course continues with hands-on PLC programming using Ladder Logic and Function Block Diagram (FBD), including simple logic exercises and a final project that combines both programming types, hardware selection, and wiring—preparing participants for real-world industrial automation applications.

## Curriculum Outline:

### 1.1 Introduction to Automation

- 1.1.1 What is Automation?
- 1.1.2 History and Evolution

### 1.2 Electrical Controls

- 1.2.1 Power and Control Circuit
- 1.2.2 Sequence, self-holding circuit, SR Latch

### 1.3 Introduction to PLCs

- 1.3.1 What is a PLC?
- 1.3.2 PLC Hardware Components + Addressing + wiring
- 1.3.3 Programming language according to IEC 61131-3

## 1.4 PLC Programming (Ladder, FBD)

- 1.4.1 Introduction to Ladder
- 1.4.2 Introduction to FBD
- 1.4.3 Simple Logic Exercises

## ➢ Final Project

- Project which uses both languages + choosing plc hardware + wiring