PLC Technology 2: Advanced Ladder Logic with S7-1200 Course Outline

Catalog number	8220-0020
Category	Electronics and Electrical Control
Duration	15 Hours
Software supplied	Siemens STEP7 TIA Portal V13
Prerequisites	PLC Technology 1: Fundamentals of Ladder Logic with S7-1200

Activity 1: Getting Started

Overview and history of PLC's

Introduction to more challenging PLC examples

Review of the Siemens TIA Portal system and the S7-1200 controller

Activity 2: Bits, Bytes, and Words

- Overview of PLC memory units
- Memory in the Siemens system

Activity 3: Count Up

- Scenario and Mechanics of the CNC Lathe
- Count up Instruction Overview
- Guidelines for Writing a CNC Lathe Program
- Programming and Running a System to Control the CNC Lathe

Activity 4: Count Up and Down

- Using a PLC to Control a Parking Lot
- The Count Up and Down (CTUD) Instruction
- Designing the Ladder Diagram

Activity 5: Project: The Lifting Platform

- Using a PLC to Control a Lifting Platform
- Designing the Ladder Diagram

Activity 6: The Equal Instruction

- Using PLC to Control a CNC Lathe
- The Equal (EQU) Instruction
- Instructions Review

Activity 7: The Not Equal Instruction

- Using PLC to Control Flashing Lights
- The Not Equal Instruction

Activity 8: Project: Applying Equal and Not Equal

- Using a PLC to Control a Three-Motor Conveyor
- Task: Programming with the Equal and Not Equal Instructions

Activity 9: The Less Than Instruction

- Using a PLC to Control an Automatic Caliper System
- Definition and Use of the Less Than Instruction

Activity 10: The Greater Than Instruction

- Using a PLC to Control an Ice Cream Filling Station
- Using the Greater Than instruction

Activity 11: Applying Greater Than and Less Than

- Using a PLC to Control an Oven Conveyor System
- Designing the Ladder Diagram
- Task: Programming with Greater Than and Less Than Instructions
- Task: Simulating the Oven Conveyor Control Program

Activity 12: The Move Instruction

- Using a PLC to Control a Butter Filling Station
- The Move value (MOVE) Instruction

Activity 13: The Add Instruction

- Using a PLC to Control a Crane
- The ADD instruction
- Task: Simulating the Crane Control Program

Activity 14: The Subtract Instruction

Using a PLC to Control a Coffee Machine

The Subtract (SUB) Instruction

Task: Simulating and Modifying the Coffee Machine Control Program

Activity 15: Conclusion

Final Project A

Final Project B

Post Test