

# Level 1: Fundamentals

## PLC—Allen Bradley

Working with a PLC efficiently requires a strong familiarity with the specifics of the programming environment and languages. This is exactly the purpose this course. The students will work with high-end products from Rockwell Automation/Allen Bradley. This training program allows students to acquire hands-on experience with industrial control equipment. Realistic examples are used to motivate students to gain the skills needs to work with PLC controlled systems – which surround us in our daily lives. As a Rockwell Encompass Partner, Festo’s training is well suited for this environment.

### Course Topics

- Control relays
- Basic design and operation
- PLC sections: input, logic and output
- Input types: discrete, analog and digital
- Memory types: ROM and RAM
- Logic processing: addressing and scanning
- Output types: discrete, analog and digital
- Numbering systems: decimal, binary, octal, hex and ASCII
- Boolean functions: identity, AND/OR/NOT circuits
- Basic troubleshooting: using a PLC as a troubleshooting tool

### Core Competencies

- Explain the operation and design of various relays
- State/explain the three PLC sections
- State/explain the three types of input devices
- State/explain the types of memory in a PLC
- Explain different types of PLC addressing
- State/explain the three types of output devices
- Convert different numbering systems used in a PLC
- Explain various Boolean gates/truth tables
- Demonstrate how to use a PLC for troubleshooting to resolve problems quicker

### Equipment

#### Advanced PLC Training System - Allen Bradley

- Introduction to PLC and PLC Hardware
- Familiarization with RSLogix 5000
- Understanding PLC operation and addressing
- Understanding four different IEC 61131 languages: Ladder Logic (focus), Sequential Function Chart, Function Block, and Structured Text
- Basic Troubleshooting



Equipment will be utilized in level 2 as well