C-206 Electrical System Installation 1
Course Credential

About this course

This SACA certified C-206 Electrical System Installation 1 course prepares students for a career in an industrial automated 4.0 industry environment. Participants are taught to install and test/commission electrical motor control circuits using these electrical components: control cabinet enclosures, 3-phase AC motors, reversing magnetic motor starters with overloads, control relays, timer relays, pushbutton switches, selector switches, limit switches, pressure switches, indicators, electro-pneumatic solenoid valves, safety disconnect switches, and circuit protection.

Modules to be covered

1. **Standard 206.1 Apply industrial electrical wiring safety procedures**
    - Performance Indicators
        - Identify industrial electrical wiring installation hazards
    - Knowledge Indicators
        - Describe PPE/ safe dress for wiring industrial electrical systems
        - Describe types of industrial electrical wiring installation hazards
        - Describe types of electrical component and enclosure standards
        - Describe NFPA 70 Arc Flash and explain its importance

2. **Standard 206.2 Interpret electrical prints for wiring installation**
    - Performance Indicators
        - Add wire number labels to an electrical print
        - Determine wire size, color, and type needed for electrical panel wiring
        - Select a circuit protection device for an electrical control system
        - Size a safety disconnect switch
    - Knowledge Indicators

- Describe the function of an electrical print
- Describe the function of cross-reference symbols and notes on an electrical print
- Describe types of wire, colors, and sizes for electrical panel wiring

3. **Standard 206.3 Install wires and terminal blocks in electrical panels**
    - Performance Indicators
        - Size and install a terminal block in an electrical panel
        - Install control and power device wires in an electrical panel
        - Route wires in an electrical panel
        - Bundle wires in an electrical panel
    - Knowledge Indicators
        - Describe types of terminal blocks and ratings
        - Describe types of electrical panel routing methods
        - Describe types of wire bundling methods

4. **Standard 206.4 Install grounding in an electrical panel**
    - Performance Indicators
        - Install a grounding circuit in an electrical control system
        - Inspect and verify an installed grounding circuit
    - Knowledge Indicators
        - Describe the National Electrical Code (NEC) grounding requirements for Electrical Systems
        - Describe the operation/components of an electrical control system grounding circuit
        - Describe methods of connecting ground wires

5. **Standard 206.5 Size and install circuit protection for an industrial electrical panel**
    - Performance Indicators
        - Size a circuit protection device for an electrical control system
        - Size a safety disconnect switch

- Install and test a circuit breaker in an industrial electrical panel

- Knowledge Indicators
  - Describe the operation of a safety disconnect switch
  - Describe the operation/construction of industrial circuit breakers

6. **Standard 206.6 Install wires between electrical panels**
   - Performance Indicators
     - Determine number of wires to run between electrical panels
     - Run wires through conduit between electrical panels
     - Route wires in an electrical panel
   - Knowledge Indicators
     - Describe types of terminal blocks and ratings
     - Describe types of electrical panel routing methods

7. **Standard 206.7 Install electrical panel wiring to external control devices**
   - Performance Indicators
     - Connect electrical wires to limit switches and pressure switches
     - Connect electrical wires to solenoid-operated pneumatic and hydraulic valves
     - Run wiring through junction boxes to external control devices
   - Knowledge Indicators
     - Describe the construction of electrical switch wiring terminations
     - Describe the construction of solenoid valve wiring terminations

8. **Standard 206.8 Install electrical panel wiring to electric motors**
   - Performance Indicators
     - Splice and tape motor leads using ring lug connectors
     - Run electrical panel wiring to motor safety switches and motors
     - Install and test an electrical motor control circuit using an electrical print
   - Knowledge Indicators
     - Describe how motors are connected to electrical panels