



AUTOMATION | ELECTRICAL
DATA COMM & SECURITY
INDUSTRIAL & SAFETY
FLUID POWER

INDUSTRIAL AUTOMATION

TUE. JUL. 13 -
FRI. JUL. 16

8 AM - 5 PM

SMC CAPE GIRARDEAU
2333 RUSMAR ST.
CAPE GIRARDEAU, MO

COURSE NUMBER: MFG213

INDUSTRIAL MAINTENANCE: INDUSTRIAL ELECTRICAL CONTROLS FUNDAMENTALS

TRAINING EVENT

This course is designed to provide knowledge and skills required to install, maintain and troubleshoot machine controls.

At the completion of this course, you will be able to:

- Define the safety considerations that must be observed when installing, checking or locking out electrical equipment
- Define uses and functions of input and output devices, relays, and motors
- Demonstrate the reading of schematic diagrams and logic
- Define an open and short condition and perform voltage and current measurements
- Demonstrate the proper use of the following test equipment in lab to measure voltage, current, resistance, and continuity: VOM, DVM, Multi-meters, continuity tester and amp probe
- **And more!**



**Authorized
Service Provider**

A ROCKWELL AUTOMATION PARTNER

+ HANDS-ON

Throughout this course, you will have the opportunity to practice the skills you have learned through a variety of hands-on exercises.



COST

\$2,550

Includes Lunch Each Day



REGISTER

To register, contact Erica Masterson at emasterson@smcelectric.com by June 20, 2021.

SCHEDULE

Day 1

- Electrical Safety
- Electrical Fundamentals
 - Fundamental concepts and terms
 - Sources of electricity
 - Transformers
 - Wiring Devices
 - Wiring Standards
- Hands-on labs

Day 2

- Input Devices
 - Push Buttons
 - Limit, Proximity, Toggle, Rotary Switches
 - Relays
- Output Devices
 - Motors
 - Heaters
 - Panel Meters
 - Light Indicators
- Disconnect Devices
 - Fuses
 - Circuit Breakers
 - Overloads
- Contactors
- Use of Multimeter
- Hands-on lab

Day 3

- Logic Devices
 - Timers
 - Counters
- Hands-on Lab
- Schematic Diagrams
 - BOM
 - Title blocks
 - Basic Schematic Symbols
 - Wire identification
- Logic Diagrams
 - Switches
 - Timers
 - Relays
 - Truth Tables
- Ladder Diagrams
 - Rung Identification
 - Power Rail Identification
- Hands-on lab

Day 4

- Basic Machine Control Systems
- Distribution
 - Three-Phase Devices
- Hands-on lab
- Build Circuits
- Circuit Troubleshooting
- Grounded and Ungrounded Control Circuits
- Hands-on lab