

Manufacturing

Basics of Electricity Course Description

COURSE AGENDA

Day 1

- Fundamental Concepts and Terms
 - Atoms, Charge, Valence Electrons
 - What is Electrical Current
 - Voltage, Resistance/Impedance
 - Ohm's & Kirchoff's laws
 - Conductors, Insulators
 - Semi-Conductors
- Sources of Electricity
 - DC & AC Electricity
 - AC Power Generations & Distribution
 - Electrical Power Consumption Costs
 - Transformers & Power Supplies
- Wiring Devices
 - Switches
 - Terminal Strips
 - Connectors
 - Circuit Breakers
 - Fuses
 - GFCIs
- Input Devices
 - Sensors
 - Switches
 - Mechanical Operators
 - Electronic Operators
- Output Devices
 - Lamps, Pilot Lights
 - Solenoids
 - Electromechanical Relays
 - Electric Motors
 - Disconnect Devices
- Use of Multimeter
- Arc Flash Hazards
- Government Regulations
 - OSHA
 - NEC
- Personal Protective Equipment



COURSE NUMBER: MFG244

Course Purpose

This course provides basic electricity knowledge to the novice. Basic electricity theory is explored identifying component operations in energized and de-energized states. The course includes safety fundamentals and safe operation awareness.

At the completion of this course, participants will understand:

- Learn and understand fundamental electrical concepts and terms
- Learn and understand about sources of electricity; how its produced and distributed
- Learn and understand variations of wiring devices
- Learn and understand input devices, sensors and switches; identifying normally open and normally closed states
- Learn and understand output devices
- Learn and understand multi-meter use
- Learn and understand safety fundamentals around electricity

Who Should Attend

All personnel needing to know basic electricity theory should attend this course.

Prerequisites

None

Technology Requirements

All technology is provided for student use in the classroom by Rockwell Automation. It is not necessary for students to bring any technology with them when attending this course.

Student Materials

To enhance and facilitate your learning experience, the following materials are provided as part of the course package:

- *Student Manual*, which contains the key concepts, definitions, and examples presented in the course.

Hands-On Practice

During the course, participants will have opportunities to complete paper exercises proving theory and relationship to electrical devices. These paper exercises will aid understanding of the major topics learned. The major topical fundamentals assist with the importance of the NEC and its role in industry, identifying AC and DC, electrical power and measurement, and safety applied to energizing and de-energizing circuits.

Course Length

This is a one-day course.

Course Number

The course number is MFG244.

To Register

To register for this or any other Rockwell Automation training course, contact your local authorized Allen-Bradley Distributor or your local Sales/Support office for a complete listing of courses, descriptions, prices, and schedules.

You can also access course information via the Web at <http://www.rockwellautomation.com/training>

www.rockwellautomation.com

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