

Manufacturing

Industrial Fluid Power Fundamentals Course Description

COURSE AGENDA

Day 1

- Physical World of a Machine
- Energy and Energy States
- Physical States of Matter including and Understanding of Force Through Different States

Day 2

- Energy Transmission Using Hydraulics including Fundamentals and Terms
- Energy Transmission Using Pneumatics including Fundamentals and Terms

Day 3

- Hydraulic and Pneumatic Safety
- Interpretation of ANSI Symbols including Symbol Rules and Representative Composite Symbols

Day 4

- Control of Pneumatic Energy
- Control of Hydraulic Energy
- Pumps and Compressors
- Air Preparation
- Fluid Conditioning

Day 5

- Check Valves, Cylinders, and Motors
- Flow Control Valves
- Directional Control Valves
- Fluid Conductors and Connectors
- Simple Pressure Control Valves



COURSE NUMBER: MFG214

Course Purpose

This course provides the basics of pneumatically and hydraulically operated devices and systems found in modern industrial machinery and automation.

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

- Match the pneumatic and hydraulic components name with it's ANSI symbol
- Solve for unknown quantities when given two of three variables: force, pressure or area
- Discuss types and uses of hydraulic fluids, including symptoms that could be caused by using fluids having too high an SUS rating for a given application
- Identify significance of the presence or absence of foam on the surface of hydraulic fluid in the reservoir
- Identify precautions during removal and replacement of hydraulic components
- Identify low control values, bypass, meter-in or meter-out flow control and location of filters
- Identify long-term symptoms associated with a lack of preventive maintenance of filters, heat exchangers, reservoirs and seals
- Demonstrate good safety practices when working with pneumatic and hydraulic equipment, including lock out procedure

Who Should Attend

Individuals involved with pneumatic and hydraulic applications in the workplace should attend this course.

Prerequisites

To successfully complete this course, a basic understanding of the following topics is required:

- Working knowledge of mathematics
- Basic familiarity with automated equipment

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 and includes the hands-on exercises.

Hands-On Practice

Throughout this course, you will have the opportunity to practice the skills you have learned through a variety of hands-on exercises. These exercises focus on the skills introduced in each lesson.

To complete the exercises, class participants will use pneumatic and hydraulic training simulation hardware. Because the basic skills taught in the course apply to all pneumatic and hydraulic platforms, the hands-on demonstrations permit you to apply what has been learned in your workplace environment.

Course Length

This is a five-day course.

Course Number

The course number is MFG214.

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

Power, Control and Information Solutions

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