

Industrial Hydraulic Technology 1

I. Program Description

SNO-Motion's Industrial Hydraulic Technology 1 course is a 3-day overview of industrial hydraulic components and circuits. This hands-on course consists of about 25% lab time as students gain a working knowledge of hydraulic equipment.

A. Aims/Objectives

In this course students will:

- Learn where and why hydraulics are used in industrial machinery
- Understand how and why hydraulic systems and components work
- Learn to read and draw hydraulic schematics

B. Major Topics Covered

- A practical study of pumps, flow valves, pressure valves, directional valves, hydraulic motors, filters, cylinders and accumulators
- Hands-on experience, designing and building hydraulic circuits on system simulators
- Some trouble shooting tactics
- A practical study of hydraulic fluids

II. Who Should Participate

Maintenance or non-engineering personnel and anyone who desires to increase their basic knowledge of hydraulic components and systems.

III. Session Information

Classes are conducted several times per year. For scheduled dates, contact our offices.

SNO-Motion Solutions
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To Apply for Training Class on Line:
<http://www.sno-motion/trainingsignup.html>
and choose the appropriate class title.

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Course Outline

Note: This course outline is presented to show the areas of discussion contained in the 3-day training program. During the course, variations in the outline may occur - this would be left up to the instructor's discretion and would only be made to improve the class.

A. First Day of Class

- I. Introductions
 - B. Pre-examination
- II. Begin Chapter 1 - "The Physical World of a Machine" a. Work in metric where appropriate
- III. Chapter 2 - "Hydraulic Transmission of Force and Energy"
 - a. work in metric where appropriate
 - b. video
 1. Transmission of Hydraulic Power
- IV. Chapter 3 - "Petroleum Base Hydraulic Fluid"
- V. Chapter 4 - "Fire Resistant Hydraulic Fluid"
- VI. Chapter 4a - "Biodegradable Hydraulic Fluid"

II. Second Day of Class

- I. Chapter 6 - "Hydraulic Actuators" a. hand out formula sheet
- II. Chapter 7 - "Control of Hydraulic Energy"
- III. Chapter 9 - "Flow Control Valves"
- IV. Lab
 - a. explain lab rules
 1. no smoking, no horseplay
 2. fast as slowest group
 3. E-stop
 - b. extend and retract cylinder
 - c. measure pump flow (Senso control)
 - d. meter-in and meter-out
 - e. regeneration
 - f. motor speed circuit
 1. meter-in and meter-out

II. Third Day of Class

- I. Third Day of Class I. Complete lab from day two
- II. Chapter 11 - "Pressure Control Valves"
- III. Chapter 12 - "Pilot Operated Pressure Control Valves"
- IV. Lab a. pressure reducing valve b. sequence valve
- V. Chapter 13 - "Hydraulic Pumps"
- VI. Chapter 15 - "Filtration"
 - a. symbol
 - b. filter placement
 - c. Beta ratio
- VII. Test
- VIII. Evaluation form
- IX. Adjourn class