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Principles of Hydraulics – blended learning

This is a blended learning course comprised of on-line web based learning followed by a 3 day instructor led practical portion. Students will gain admission to the instructor led portion only after they have completed the on-line portion.

Industrial and mobile hydraulic maintenance personnel learn the principles of hydraulics

What you will learn –

- Principles of fluid flow and pressure, work, power, actuator speed for industrial and mobile hydraulic systems
- Power consumed by hydraulic systems and why hydraulic systems get hot
- Hydraulic component symbols typically used in industrial and mobile systems
- Reading and interpreting basic industrial and mobile hydraulic schematics
- Function and use of pressure control valves
- Function and use of directional control valves commonly used in industrial and mobile hydraulic systems
- Load control and load holding techniques
- Types and operation of hydraulic pumps
- Characteristics of modern variable displacement pumps
- Setup of pressure regulating variable displacement pump controls
- Setup of adjustable hydraulic components used in industrial and mobile hydraulic systems
- 10 fundamental circuits most often used in industrial and mobile hydraulic systems
- How flow controls work to control actuator speed
- Using a variable displacement pump to control actuator speed in mobile hydraulic systems
- Function and operation of cylinders and hydraulic motors
- Function and use of a valve's "X" and "Y" ports
- Introduction to fluid cleanliness and filtration
- Introduction to electro-proportional hydraulic valves
- Knowledge reinforcement with hands-on lab exercises

This is a 1st level hydraulics training course for both industrial and mobile hydraulic equipment maintenance personnel. This training course is recommended for those who are new to hydraulically powered and controlled machines and equipment and for those who have had no prior formal training in hydraulics technology. This training course is also highly recommended for plant engineering personnel and mobile equipment engineering personnel who are tasked with hydraulic system improvement, system modifications and system design. Principles of Hydraulics was developed with the idea that hydraulic systems are best understood and that hydraulic system problems are more efficiently resolved by those who understand the physical principles that apply to industrial and mobile hydraulics.

Prerequisites: Proficiency in reading and math

Approximately 20% lecture and questions 80% hands-on lab