

Course Objectives/Course Outline
Spokane Community College

Course Title: Hydraulic Calculations

Prefix and Course Number: FLPT 111

Course Learning Outcomes:

By the end of this course, a student should be able to:

- calculate cylinder push and pull force at specific pressure
- size cylinder for a specific load or application
- calculate cylinder rod speed (extend and retract) at specific GPM
- calculate system HP at specific GPM and PSI
- size hydraulic pump to system requirements
- calculate oil velocity in fluid line at specific GPM flow
- solve torque/horsepower problems used to size hydraulic motors
- based upon given information, solve word problems

Course Outline:

- I. Basic Concepts of Algebra
 - A. Percentage Calculations
 - B. Ratio Problem Solving
 - C. Powers and Roots
 - D. Positive and Negative Numbers
 - E. Simple Equations
 - F. Sequence of Operations
- II. Actuator Calculations
 - A. Cylinders
 - B. Hydraulic Motors
- III. Pumps
 - A. Conversion of RPM and Cubic Inch Displacements to GPM
 - B. HP and Specific RPM
 - C. HP and Variable RPM
- IV. Fluid Lines
 - A. Calculation of Oil Velocity
 - B. Fluid Line Sizing
- V. Problem Solving
 - A. System Component Sizing