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