

Course Objectives/Course Outline
Spokane Community College

Course Title: Hydraulic Circuit Design

Prefix and Course Number: FLPT 265

Course Learning Outcomes:

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

- analyze customer specifications regarding hydraulic system design
- establish design criteria for a given system
- estimate material, labor, and total cost
- calculate true material costs based on quantity and trade discounts as a percentage of list price

Course Outline

- I. Hydraulic System Specifications
 - A. Maximum Load
 - B. Load Speed (Unit)
 - C. Machine Type
 - D. Duty Cycle
 - E. Shock Loading
 - F. Machine Control
 - G. Power Unit Location
 - H. Hydraulic Oil
 - I. Safety Requirements
 - J. Cost Considerations
- II. Hydraulic System Design
 - A. Key Factors
 1. proportional and servo valves with amplifier cards
 2. acceleration
 3. natural frequency
 4. bulk modulus
 5. filtration beta ratings
 - B. System Bill of Material Proposals
 - C. Cost Estimates
 - D. Mathematic Calculations and Formulas
 - E. Final Design Selection