

BELLINGHAM TECHNICAL COLLEGE

DIESEL EQUIPMENT TECHNOLOGY

COURSE NUMBER: DET 201

COURSE TITLE: HYDRAULICS 201

CREDITS: 8cr

COURSE DESCRIPTION: This course will address the basic operation of hydraulic/pneumatic systems, with the emphasis on preventive maintenance and logical troubleshooting.

OUTCOME: Systematically summarize various hydraulic systems and logically troubleshoot problems within those systems.

OUTLINE:

The Physical World of a Machine
Hydraulic Transmission of Force and Energy
Petroleum Base Hydraulic Fluid
Fire Resistant Hydraulic Fluid
Operation at the Suction Side of the Pump
Hydraulic Actuators
Control of Hydraulic Energy
Check valves, Accumulators and Cylinders
Flow Control Valves
Directional Control Valves
Pressure Control Valves
Pilot Operated Pressure Control Valves
Hydraulic Pumps
Hydraulic Motors
Reservoirs, Coolers and Filters

STUDENT PERFORMANCE OBJECTIVES:

Given, reference materials, tools of the trade and following industry approved safety procedures the student will:

1. calculate flow and pressure within 90% accuracy
2. identify major system components with 90% accuracy
3. troubleshoot systems to industry standard times
4. read and evaluate schematics with 90% accuracy
5. identify different types of hose, pipe, tube, and fittings with 90% accuracy

METHOD OF INSTRUCTION:

1. demonstration
2. discussion
3. interactive software
4. lecture
5. field trips
6. audio/visual

Provide opportunity for disadvantaged or disabled students by providing alternate modes of learning.

STUDENT ASSIGNMENTS/REQUIREMENTS:

The following must be completed before a grade can be given:

1. 90% class attendance required AND the attendance form turned in on the last day of the month class is held
2. completion of Cat Basics Library required
3. completion of assigned competencies and tasks required

EVALUATION AND GRADING:

- 100% completion of assigned job sheets required. No grade will be assigned if the job sheets are not completed.
 - Individual tests account for 10% of the final grade
 - Group/Team tests account for 35% of final grade
 - Attendance accounts for 20% of the final grade
 - Participation accounts for 25% of the final grade
1. Afternoon co-op **MAY** be available with instructor approval. Hours for financial aid will be compiled at the end of each month or quarter.
 2. Attendance of less than 90% **will** receive an incomplete grade.

3. Letter grades:

0 - 61 = F	62 - 65 = D-	66 - 68 = D	69 - 71 = D+	72 - 75 = C-	76 - 78 = C
79 - 81 = C+	82 - 85 = B-	86 - 88 = B	89 - 91 = B+	92 - 95 = A-	96 - 100 = A

REQUIRED STUDENT SUPPLIES AND MATERIALS:

REQUIRED TEXT: Industrial Hydraulic Technology 2nd Edition **Parker**
OPTIONAL: INDUSTRIAL HYDRAULICS MANUAL **VICKERS**

ADDITIONAL INSTRUCTIONAL RESOURCES:

1. "**VICKERS** INTRODUCTION TO HYDRAULICS" 8 videos
2. "**VICKERS** TECHNICAL REBUILD" 10 videos
3. "HYDRAULICS HEADACHES" **JOHN DEERE**
4. Parker Hydraulic Trainer
5. CONCRETE CONSTRUCTION trade magazine
6. CRANE WORKS trade magazine
7. CONSTRUCTION EQUIPMENT trade magazine
8. NATIONAL FISHERMAN trade magazine
9. HYDRAULICS AND PNEUMATICS trade magazine