

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



Sault College

COURSE OUTLINE

COURSE TITLE: Fluid Power Systems

CODE NO. : CVC 602 **LEVEL:** 1

PROGRAM: Commercial Vehicle - Common Apprenticeship (6080)

AUTHOR: George Parsons

DATE: June 2008 **PREVIOUS OUTLINE DATED:**

APPROVED:

	“Corey Meunier”	
	CHAIR	DATE

TOTAL CREDITS: 4

PREREQUISITE(S):

HOURS/WEEK: Total Hours 27.5

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For additional information, please contact Corey Meunier, Chair
School of Technology & Skilled Trades
(705) 759-2554, Ext. 2610

I. COURSE DESCRIPTION:

Upon successful completion of this course, Fundamentals of Fluid Power Systems, the student will be able to perform basic calculations of pressure, force, and area using Imperial and Systeme International d'Unites (s.i.) measurement, be able to interpret basic hydraulic and pneumatic system schematics and symbols, be able to explain the operation of basic hydraulic and pneumatic components, be able to describe the different types of hydraulic fluids and their applications, be able to describe the inspection and testing procedures for hydraulic and pneumatic conductors and fittings, be able to describe a regularly scheduled maintenance service all following manufacturers' recommendations for hydraulic and pneumatic systems, government regulations and safe work practices.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. Fluid Power FundamentalsPotential Elements of the Performance:

- Define the fundamentals of hydraulic and pneumatic systems.
- Describe terms and applications for hydraulics and pneumatics.
- Perform calculations of force, pressure and area using basic laws.

2. Fluid Power Component and Graphic SymbolsPotential Elements of the Performance:

- Identify basic hydraulic components and related graphic symbols.
- Describe the construction features and applications of schematics for pneumatic and hydraulic systems.
- Draw a basic hydraulic and pneumatic circuit schematic and apply related graphic symbols.

3. Fluid Power Principles of OperationPotential Elements of the Performance:

- Define the purpose and fundamentals of pneumatic and hydraulic components.
- Describe the construction features of pneumatic and hydraulic components.
- Explain the principles of operation of pneumatic and hydraulic components.
- Locate pneumatic and hydraulic components on common system schematics.

4. Fluid Power Hydraulic Fluids and Filters**Potential Elements of the Performance:**

- Define the fundamentals of hydraulic fluids.
- Describe the composition and properties of hydraulic fluids.
- Describe the function and construction features of hydraulic fluid filters.

5. Fluid Power Conductors and Connectors**Potential Elements of the Performance:**

- Define the purpose of pneumatic and hydraulic conductors and connectors.
- Describe the construction features, types, and application of conductors and connectors.
- Describe the procedure to construct, inspect and test hydraulic conductors.

6. Fluid Power Maintenance Schedule**Potential Elements of the Performance:**

- Describe the fundamentals of regular hydraulic and pneumatic system maintenance service.
- Describe the replacement procedures for hydraulic oil filters including identification of oil contamination, inspection of lines and water separators, and completion of a maintenance schedule check-off report.

III. TOPICS:

1. Fluid Power Fundamentals
2. Fluid Power Component and Graphic Symbols
3. Fluid Power Principles of Operation
4. Fluid Power Hydraulic Fluids and Filters
5. Fluid Power Conductors and Connectors
6. Fluid Power Maintenance Schedule

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Vickers Mobile Hydraulics Manual

Sault College and SAE approved safety glasses and steel toe work boots required for shop activities, including coveralls or a shop coat.

V. EVALUATION PROCESS/GRADING SYSTEM:

- **70% of theory testing.**
- **10% shop assignments.**
- **20% Final Exam.**

The following semester grades will be assigned to students:

Grade	Definition	Grade Point Equivalent
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

VI. SPECIAL NOTES:Special Needs:

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Special Needs office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Retention of Course Outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Communication:

The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Code of Conduct*. Students who engage in academic dishonesty will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course Outline Amendments:

The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

VII. PRIOR LEARNING ASSESSMENT:

Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII. ADVANCE CREDIT TRANSFER:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question.