

I. COURSE DESCRIPTION:

Upon successful completion of this course the student will be able to perform basic calculations of pressure, force, and area using Imperial and Systems 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 FiltersPotential 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 ConnectorsPotential 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 SchedulePotential 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:

- *Fundamentals of Medium/Heavy Duty Commercial Vehicle Systems Jones & Bartlett Learning CDX Automotive – ISBN: 978-1-284-04116-3*
- Sault College and SAE approved safety glasses and steel toe work boots required for shop activities, including coveralls.

V. EVALUATION PROCESS/GRADING SYSTEM:

70% Theory Testing
10% Theory Assignments
20% Shop Assignments

The following semester grades will be assigned to students:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
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.	

If a faculty member determines that a student is at risk of not being successful in their academic pursuits and has exhausted all strategies available to faculty, student contact information may be confidentially provided to Student Services in an effort to offer even more assistance with options for success. Any student wishing to restrict the sharing of such information should make their wishes known to the coordinator or faculty member.

VI. SPECIAL NOTES:Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

It is the departmental policy that once the classroom door has enclosed, the learning process has begun. Late arrivers will not be granted admission to the room.

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the Student Portal form part of this course outline.



COURSE OUTLINE ADDENDUM

1. Course Outline Amendments:

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

2. 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.

3. Prior Learning Assessment:

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. Please refer to the Student Key Dates Calendar for the deadline date by which application must be made for advance standing.

Credit for prior learning will also be given upon successful completion of a challenge exam or portfolio. Student Services can provide information regarding the Prior Learning Assessment and Recognition policy or it can be viewed on the student portal.

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

4. Student Portal:

The Sault College portal allows you to view all your student information in one place. **mysaultcollege** gives you personalized access to online resources seven days a week from your home or school computer. Single log-in access allows you to see your personal and financial information timetable, grades, records of achievement, unofficial transcript, and outstanding obligations. In addition announcements, news, academic calendar of events, class cancellations, your learning management system (LMS), and much more is available. Go to <https://my.saultcollege.ca>.

5. Communication:

The College considers **Desire2Learn (D2L)** 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 this Learning Management System (LMS) communication tool.

6. Accessibility Services:

If you are a student with a disability (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with the Accessibility Services office. Call Ext. 2703 or email studentsupport@saultcollege.ca so that support services can be arranged for you.

7. Audio and Video Recording Devices in the Classroom:

Students who wish to use electronic devices in the classroom will seek permission of the faculty member before proceeding to record instruction. Students with disabilities who require audio or visual recording devices in the classroom as an accommodation will receive approval from their counsellor once the Audio and Video Recording Devices in the Classroom Policy has been reviewed by the student. Recorded classroom instruction will be used only for individual academic use and will not be used for any other purpose. Recordings may only be used for individual study of materials presented during class and may not be published or distributed. Intentional misuse of audio and video recordings or intentional misrepresentation when requesting the use of a device for recording shall constitute a violation of this policy and laws protecting intellectual property.

8. Academic Dishonesty:

Students should refer to the definition of “academic dishonesty” in the *Student Code of Conduct*. Students who engage in academic dishonesty will be issued a sanction under the Student Code of Conduct which could lead to and include expulsion from the course/program. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, students must use a documentation format for referencing source material.

9. Tuition Default:

Students who have defaulted on the payment of tuition) as of the first week of November (fall semester courses), first week of March (winter semester courses) or first week of June (summer semester courses) will be removed from placement and clinical activities due to liability issues. This may result in loss of mandatory hours or incomplete course work. Sault College will not be responsible for incomplete hours or outcomes that are not achieved or any other academic requirement not met as of the result of tuition default. Students are encouraged to communicate with Financial Services with regard to the status of their tuition prior to this deadline to ensure that their financial status does not interfere with academic progress.