SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE:	Hydraulics Systems		
CODE NO. :	MCH221	**SEMESTER:**	5
PROGRAM:	Aviation Technology (Flight)		
AUTHOR:	Karol Uchmanowicz		
DATE:	January 2011	**PREVIOUS OUTLINE DATED:**	Jan 2009
APPROVED:	*"Corey Meunier"* **CHAIR**		_____ **DATE**
TOTAL CREDITS:	4		
PREREQUISITE(S):	MCH110		
HOURS/WEEK:	4 hours per week (plus labs)		

I. COURSE DESCRIPTION:

Fluid power is used for power and control of many operations on aircraft. This course is intended to provide a fundamental understanding of fluid theory, fluid power, theory, component operations, circuit design and system troubleshooting.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Understand fundamental fluid principles.

Potential Elements of the Performance:

- Determine solutions to assorted fluid mechanics problems.

2. Be familiar with terminology and schematics.

Potential Elements of the Performance:

- Develop with sketches and calculations, basic hydraulic circuits using proper symbols.

3. Demonstrate knowledge of key components in fluid power systems.

Potential Elements of the Performance:

- Identify components and explain their function.

4. Demonstrate knowledge of aircraft hydraulic systems.

Potential Elements of the Performance:

- Study schematics and manufacturers' literature.

5. Understand basic aircraft control systems.

Potential Elements of the Performance:

- Explain sequence of operation using electrical over hydraulic schematics.

6. Apply troubleshooting skills.

Potential Elements of the Performance:

- Solve hydraulic problems using simulated scenarios.

III. TOPICS:

1. Fluid properties statics, work and power
2. Terms and symbols
3. Components
4. Landing gear, brakes, flight control
5. Controls
6. Troubleshooting

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

"Fluid Power with Applications" by Anthony Esposito (6^{th} ed.)

V. EVALUATION PROCESS/GRADING SYSTEM:

Grading - Tests - **70%**
Quizzes, labs, assignments, attendance - **30%**

Attendance – Scheduled labs are mandatory

Tests- three tests are planned, one week notice will be given

Students who will be absent for a scheduled test must contact instructor in advance. Students absent without prior notification and a valid reason will be given a zero grade for the missed test.

Quizzes – quizzes can be held without notice, throughout the semester. Students who are absent, will receive a zero grade for that quiz

The following semester grades will be assigned to students:

Grade	**Definition**	*Grade Point Equivalent*
A+	90 – 100%	4.00
A	80 – 89%	
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00

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:

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.

VII. COURSE OUTLINE ADDENDUM:

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