SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE

COURSE TITLE: Hydraulics Systems

CODE NO.: MCH221 SEMESTER:

PROGRAM: Aviation Technology (Flight)

AUTHOR: Frank Musso

DATE: PREVIOUS OUTLINE DATED: January January

> 2016 2015

"Corey Meunier"

CHAIR

TOTAL CREDITS: 4

APPROVED:

MCH110 PREREQUISITE(S):

HOURS/WEEK: 4 hours per week (plus labs)

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Hydraulics Systems MCH221

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

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IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

"Fluid Power with Applications" by Anthony Esposito (current edition)

V. EVALUATION PROCESS/GRADING SYSTEM:

Grading - Written Tests - 60% Quizzes, labs, assignments, attendance - 30% Assignments, attendance, & attitude - 10% 100%

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:

The following controller graded will be accigned to claderite.		Grade Point
Grade	<u>Definition</u>	Equivalent
A+ A	90 – 100% 80 – 89%	4.00
В	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	
S	awarded. Satisfactory achievement in field /clinical	
U	placement or non-graded subject area. Unsatisfactory achievement in	
	field/clinical placement or non-graded subject area.	
Χ	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.	

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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.