



## COURSE OUTLINE: AVF245 - AIRFRAMES, ENGINES II

Prepared: Ryan London

Approved: Greg Farish, Chair, Aviation Technology - Flight

<b>Course Code: Title</b>	AVF245: AIRFRAMES, ENGINES AND INSTRUMENTS II
<b>Program Number: Name</b>	4061: AVIATION TECHNOLOGY
<b>Department:</b>	AVIATION TECHNOLOGY
<b>Academic Year:</b>	2022-2023
<b>Course Description:</b>	A study of engines and airframes including the internal combustion engine and the basic gas turbine engine, fuels and fuel systems, lubrication and oil, ignition systems, engine instruments, propellers, airframes, and electrical systems at the Commercial Pilot Level.
<b>Total Credits:</b>	2
<b>Hours/Week:</b>	2
<b>Total Hours:</b>	28
<b>Prerequisites:</b>	AFT120, AVF122, AVT123, ELR104
<b>Corequisites:</b>	There are no co-requisites for this course.
<b>This course is a pre-requisite for:</b>	AFT250, AVT252, AVT253, AVT257, AVT259
<b>Essential Employability Skills (EES) addressed in this course:</b>	<p>EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.</p> <p>EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication.</p> <p>EES 4 Apply a systematic approach to solve problems.</p> <p>EES 5 Use a variety of thinking skills to anticipate and solve problems.</p> <p>EES 6 Locate, select, organize, and document information using appropriate technology and information systems.</p> <p>EES 7 Analyze, evaluate, and apply relevant information from a variety of sources.</p> <p>EES 8 Show respect for the diverse opinions, values, belief systems, and contributions of others.</p> <p>EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals.</p> <p>EES 11 Take responsibility for ones own actions, decisions, and consequences.</p>
<b>Course Evaluation:</b>	<p>Passing Grade: 70%, B</p> <p>A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.</p>
<b>Other Course Evaluation &amp; Assessment Requirements:</b>	The student will be assessed by a combination of attendance and department, quizzes, tests and a final exam. Weighting of each will be as follows: 30% for quizzes, 30% for all tests prior



to the final exam and 40% for the final exam. A minimum mark of 70% (B) is required to pass the course.

Unexcused absences will result in 2% deduction of the final mark for each occurrence, arriving for class late will result in a 1% deduction of the final mark for each occurrence, and violations of the dress code will result in a 1% deduction of the final mark for each occurrence. Refer to the Sault College Aviation Standard Operating Procedures (SOP's) Section 10 for dress code policies and SOP Section 4 for policy regarding absence from classes.

Quizzes will be given without prior notice.

Students may request a deferment of a test for compassionate reasons. Compassionate Grounds for deferment will include but not be limited to death of an immediate family member, personal illness, or recent diagnosis of a serious illness of a family member. Make-ups will not be permitted after the fact for compassionate reasons.

A classroom code of conduct can be found in the Sault College Student Code of Conduct, on the Sault College Website. This along with the list of Unacceptable Behaviours in the SOP will be adhered to.

Attendance is mandatory for all Aviation classes unless approval is granted in advance. In the case of illness, a phone call, voice mail or e-mail message is expected before class.

If a student expects to be late or will be delayed for any reason, every attempt should be made to contact the professor, or leave a message on voice mail or e-mail.

Although attitude, co-operation, etc., are not graded, students may be terminated based on their performance in this area (see section 5.2 SOP). These attributes are also considered in the selection of the Air Canada Award and other scholarships.

Dates of tests will be announced at least 1 week in advance.

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.

**Books and Required Resources:**

PROFESSOR NOTES by PROFESSOR NOTES  
FROM THE GROUND UP by MCDONALD  
Publisher: AVIATION PUBLISHERS Edition: 29  
ISBN: 0973003634

**Course Outcomes and Learning Objectives:**

Course Outcome 1	Learning Objectives for Course Outcome 1
Demonstrate a practical working knowledge of aircraft engines	Describe and understand the difference between a two/four stroke cycle Describe and understand the methods of cooling aviation engines Describe and understand turbine theory and layout Describe the proper handling procedures of aviation engines in flight Describe the effects of forced induction in aircraft engines



	<b>Course Outcome 2</b>	<b>Learning Objectives for Course Outcome 2</b>
	Demonstrate a practical knowledge of aircraft fuel systems	Describe and understand the principles of carburation and fuel injection in aircraft engines Describe and understand malfunctions associated with aircraft fuel systems Describe and understand fuel storage, delivery systems and identification of common fuels used in aviation
	<b>Course Outcome 3</b>	<b>Learning Objectives for Course Outcome 3</b>
	Demonstrate a practical knowledge of aircraft pressurization, environmental, electrical and de-icing/ anti-icing systems	Describe and understand pressurization systems used in turbine powered aircraft Describe and understand various environmental systems used in aircraft to control cabin temperature Describe and understand AC and DC power generation and systems and malfunctions Describe and understand various methods to de-ice an aircraft or prevent the accumulation of ice in flight

**Evaluation Process and Grading System:**

<b>Evaluation Type</b>	<b>Evaluation Weight</b>
FINAL EXAM	40%
MIDTERM EXAM	30%
QUIZZES	30%

**Date:**

July 4, 2022

**Addendum:**

Please refer to the course outline addendum on the Learning Management System for further information.

