



**SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY**

**SAULT STE. MARIE, ONTARIO**



**COURSE OUTLINE**

**COURSE TITLE:** Airframes, Engines and Zlin Systems  
**CODE NO. :** AVF115-2 **SEMESTER:** One  
**PROGRAM:** Aviation Technology (Flight)  
**AUTHOR:** Earl Turner  
**DATE:** July 4, 2016 **PREVIOUS OUTLINE DATED:** June 11, 2015  
**APPROVED:**   
Director  **DATE** July 29, 2016  
**TOTAL CREDITS:** 2  
**PREREQUISITE(S):** n/a  
**HOURS/WEEK:** 2

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**I. COURSE DESCRIPTION:**

A study of the topics necessary to determine that an aircraft is ready for flight, including an overview of airframes and engines and a study of the systems and performance for the aircraft used for flight training, documents and airworthiness, dispatch procedures, record keeping, weight and balance, servicing and elementary maintenance)

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

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

**1. Demonstrate a practical working knowledge of airframes and engines.****Potential Elements of the Performance:**

- Knowledge of piston engine layout, operational cycles etc.
- Knowledge of turbine theory, layout, gas flow etc.
- Knowledge of propeller terminology, types, operation etc.
- Knowledge of fuel, lubrication, induction, exhaust and ignition systems.
- Knowledge of various construction material and their properties.
- Knowledge of the various airframe styles and types of construction.
- Understanding of stress and strain and the limitations imposed on airframes.
- Understanding of corrosion concerns.

**2. Describe the aircraft and its systems with sufficient detail to demonstrate a practical working knowledge.****Potential Elements of the Performance:**

- Have a clear understanding of the terminology, abbreviations and definitions used in the flight manual.
- Have a clear understanding of the technical description of the aircraft and its systems.
- Know the operating limitations of the aircraft.

**3. Apply the Normal and Emergency Procedures applicable to the aircraft.****Potential Elements of the Performance:**

- Practical knowledge of all checklist items including the rationale for each item.

- Memorization of necessary memory items.
  - Ability to satisfactorily determine a procedure to use where there is no checklist procedure.
4. **Accomplish all necessary pre-flight calculations applicable to the aircraft.**  
Potential Elements of the Performance:
- Perform weight & balance calculations.
  - Calculate performance requirements for take-off, climb, cruise, landing etc.
5. **Determine that the aircraft is certified & fit for flight.**  
Potential Elements of the Performance:
- Have a clear understanding of the appropriate sections of the Maintenance Policy and Control Manual.
  - Have a clear understanding of the maintenance requirements for the aircraft.
  - Have a clear understanding of the Sault College Dispatch Procedures.
  - Know the actions to take following an abnormal occurrence or the discovery of an aircraft defect.
  - Be able to make the appropriate flight sheet and log entries.

### III. TOPICS:

1. Engine & propellers
2. Airframe layout, construction and materials
3. General description of the aircraft and its systems.
4. Aircraft operating limitations.
5. Normal and emergency procedures.
6. Aircraft performance charts and weight & balance.
7. Maintenance requirements and the MPCM

### IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

1. From The Ground Up
2. Sault College Ground School Manual – Zlin Z-242 L (2013 edition).
3. Sault College Aviation Technology Maintenance Policy and Control Manual (MPCM) \*
4. Sault College Aviation Technology Maintenance Schedule – Zlin Z-242 L \*
5. Canadian Aviation Regulations (CARs) \*

\* Downloadable from the Internet (Link on LMS).

## V. EVALUATION PROCESS/GRADING SYSTEM:

The student will be assessed by a combination of attendance and deportment, quizzes, tests and a final exam. Weighting of each will be as follows: 20% for quizzes, 30% for all tests prior to the final exam and 50% for the final exam. A minimum mark of 70% (B) overall, as well as a minimum of 70% on the final exam 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 SOP GEN 1.3 for dress code policies and SOP GEN 1.6.7 for policy regarding absence from classes
- Quizzes will be given without prior notice.
- Students may request a deferment of a test or exam 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 SOP General section, and will be adhered to.
- Attendance is mandatory for all Aviation classes unless approval is granted. In the case of illness, a phone call, voice mail or e-mail message is expected.
- 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 VI). 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.
- Note: a pass mark of 70% on the final exam is necessary to indicate that the student has sufficient knowledge to safely operate the aircraft systems and is a necessary part of the qualifications which allow the student to fly the aircraft.
- 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.

The following semester grades will be assigned to students:

<b>Grade</b>	<b><u>Definition</u></b>	<b><i>Grade Point Equivalent</i></b>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	
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:****Attitude and Conduct**

Attitude plays an important role in your ability to exercise good judgment. Although attitude is not being graded, it affects your ability to learn as well as your safety as a student and future as a professional pilot. Students who display a strong tendency towards any of the five hazardous attitudes pose a grave risk to themselves and others. For this reason, students exhibiting one or several hazardous attitudes will be counseled and if necessary, will be put on a behavioral contract. If this is ineffective in modifying unacceptable behavior, then the student will be withdrawn from the program.

The five hazardous attitudes are identified as Anti-authority, Impulsivity, Invulnerability, Machismo, and Resignation. These hazardous attitudes are described in "Human Factors for Aviation – Basic Handbook" on pages 151 and 152.

**Attendance:**

Attendance is mandatory in this course. Please read the bullet on "Unexcused Absences" under **Section V: EVALUATION PROCESS/GRADING SYSTEM**

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.



## 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, located in E1101, 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 to announcements, news, academic calendar of events, class cancellations, your learning management system (LMS), and much more. 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. Visit Room E1101, call Ext. 2703 or email [studentsupport@saultcollege.ca](mailto: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 (tuition has not been paid in full, payments were not deferred or payment plan not honoured) 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.