

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



Sault College

COURSE OUTLINE

COURSE TITLE: Meteorology I & II

CODE NO. : AVF111-2 **SEMESTER:** One

PROGRAM: Aviation Technology (Flight)

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DATE: June 2015 **PREVIOUS OUTLINE DATED:** June 2014

APPROVED: _____
Greg Mapp *July 1st 2015*
CHAIR DATE

TOTAL CREDITS: 2

PREREQUISITE(S): none

HOURS/WEEK: 2

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I. COURSE DESCRIPTION:

This course prepares pilots-in-training for writing the meteorology section of the Transport Canada Private Pilot written exam as well as enabling them to interpret weather reports and forecasts in preparation for flight. To provide a solid foundation for making good weather decisions, meteorology theory is covered in detail. This course also provides the foundation for meteorology in second and third year of the Aviation Program.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Understand the foundation theory required for further exploration of Meteorology.

Potential Elements of the Performance:

Moisture in the atmosphere, heating and cooling the atmosphere, stability, pressure and circulation, air masses

2. Understand the structure of Fronts

Potential Elements of the Performance:

Warm, cold and quasi-stationary fronts, frontal waves and occlusions, discontinuities across fronts

3. Understand the formation of Clouds and Precipitation

Potential Elements of the Performance:

Formation mechanisms of clouds and precipitation, classification of clouds, how clouds and precipitation affect flight

4. Understand Aircraft Icing

Potential Elements of the Performance:

Formation of airframe ice, conditions that lead to icing, aerodynamic factors, effects of airframe ice

5. Understand the factors that affect flight visibility

Potential Elements of the Performance:

Measuring visibility, Lighthometers, Precipitation, formation of fog and fog types, white out, calculate the distance to the visible horizon

6. Understand the types of boundary layer winds and turbulence

Potential Elements of the Performance:

Classification and effect of wind shear, types of winds, wake turbulence

7. Understand Altimetry

Potential Elements of the Performance:

The altimeter, the ISA, altimeter setting, drift and altimeter error, terrain clearance, combined errors, density altitude

8. Understand the formation of Mountain Waves

Potential Elements of the Performance:

formation, cloud types, mountain wave turbulence, effect on aircraft

9. Understand the formation and hazards of Thunderstorms

Potential Elements of the Performance:

the three stages, gust front, downdraft, hail, lightning, severe storm structure, classification, hazards

10. Interpret Aviation Weather Forecasts

Potential Elements of the Performance:

Graphical Area Forecasts (GFA), Terminal Area Forecasts (TAF), Upper wind and temperature forecasts (FD), Airman's Meteorological Advisory (AIRMET), Significant In-Flight Weather Warning Messages (SIGMET)

11. interpret Aviation Weather Reports

Potential Elements of the Performance:

Aviation Routine Weather Report (METAR), Pilot Reports (PIREP)

12. Interpret Weather Maps

Potential Elements of the Performance:

Surface Analysis charts, Upper air charts

III. TOPICS:

1. Foundations of meteorology
2. Structure of Fronts
3. Clouds and Precipitation
4. Aircraft Icing
5. Visibility
6. Boundary layer winds and turbulence
7. Altimetry
8. Mountain Waves
9. Thunderstorms
10. Interpret aviation weather forecasts
11. interpret aviation weather reports
12. interpret aviation weather maps

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Air Command Weather Manual
Air Command Weather Workbook
Aeronautical Information Manual (AIM)
Access to the internet is an asset

V. EVALUATION PROCESS/GRADING SYSTEM:

The student will be assessed by a combination of tests and a final exam. Weighting of each will be as follows: 50% for the tests and 50% for the final exam. The final exam will cover all material taught throughout the semester and will approximate the meteorology portion of the Transport Canada written exam. Marks will be deducted for unexcused absences (see special notes for details). In order to pass the course, a minimum grade of B must be achieved, otherwise the course must be repeated in accordance with the Aviation Standard Operating Procedures.

- In order to be excused from class due to illness or other unforeseen circumstance, students must call the professor at extension 2666 and leave a message prior to the start of class. An email is also acceptable, but must be sent prior to the start of class.
- 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.**
- 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.

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 – 69.4%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
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. It is the departmental policy that once the classroom door has been closed, the learning process has begun. Late arrivers may not be granted admission to the room.

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. To avoid losing marks due to illness, you must contact the professor and leave a voice message (which is time-stamped) or an email **PRIOR TO THE START OF THE CLASS**. Calling after the class begins will indicate that the student simply slept in and was not in fact sick.

Cell phones and computers

Cell phones are not required for any part of the class activities. Texting and web use will only cause unnecessary distraction, and therefore is not allowed. Anyone using their cell phone during class may be asked to leave for the duration of the class hour. No deduction in marks will occur. Some students like to use their laptop. This is not necessary since all course material is available both in their textbooks or on LMS. Students are allowed to use them but this permission will be withdrawn if a student is caught using their laptop for non-class related use.

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VII. COURSE OUTLINE ADDENDUM:1. Course Outline Amendments:

The professor 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 Academic Calendar of Events 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.

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

4. 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 your professor and/or the Accessibility Services office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

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. Plagiarism:

Students should refer to the definition of "academic dishonesty" in *Student Code of Conduct*. Students who engage in academic dishonesty will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

7. 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* 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.

8. 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>.

9. Electronic 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. With the exception of issues related to accommodations of disability, the decision to approve or refuse the request is the responsibility of the faculty member. Recorded classroom instruction will be used only for personal use and will not be used for any other purpose. Recorded classroom instruction will be destroyed at the end of the course. To ensure this, the student is required to return all copies of recorded material to the faculty member by the last day of class in the semester. Where the use of an electronic device has been approved, the student agrees that materials recorded are for his/her use only, are not for distribution, and are the sole property of the College.

