

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE

COURSE TITLE: Meteorology 1
CODE NO. : AVT111-1 **SEMESTER:** One
PROGRAM: Aviation Technology (Flight)
AUTHOR: Louis St Pierre
DATE: July 2006 **PREVIOUS OUTLINE DATED:** Aug 2005
APPROVED:

DEAN **DATE**

TOTAL CREDITS: 1
PREREQUISITE(S): None

HOUR/WEEK: 1

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For additional information, please contact Colin, Kirkwood, Dean
School of Technology, Skilled Trades, Natural Resources & Business
extension 2688

I. COURSE DESCRIPTION:

This course covers most of the theory required for the Private pilot, as well as provide the basic knowledge required for meteorology in the second and third years 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 at 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. Understand and apply the theory of meteorology required for the completion the meteorology portion of the Transport Canada Private Pilot exam

Potential Elements of the Performance:

All elements taken this semester is in preparation for the Private Pilot written exam and also applies to Commercial and IFR level meteorology

Note: Any of the topics above not covered in AVT111 will be covered in AVT121 in semester 2.

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. Preparation for Transport Canada Exams

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Air Command Weather Manual
Air Command Weather Supplement
Aeronautical Information Publication (AIP)
Access to the internet is an asset

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% is required to pass the course. Make-up tests are not permitted except in accordance with section VI of this outline.

- 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 section for dress code policies and for policy regarding absence from classes
- Quizzes will be given without prior notice.
- If it is necessary to write a second final exam in order to pass the course, the highest grade achievable will be a "C". (See make-up policy in section VI)
- 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.**
- **"F" grades in any subject at the end of a semester will result in termination from the Aviation program.**
- 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.
- A classroom code of conduct can be found in the SOP General section, and will be adhered to.

The following semester grades will be assigned to students in this course:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 -100%	4.00
A	80 - 89%	
B	70 - 79%	3.00
C	assigned if a make-up exam was required to complete the course	2.00
F (Fail)	below 70%	0.00

The following semester grades will be assigned to students in this course:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
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 judgement. 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 counselled and if necessary, will be put on a behavioural contract. If this is ineffective in modifying unacceptable behaviour, 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.

Make-up Policy

- No make-ups on tests occurring prior to final exams.
- No make-ups on quizzes.
- If the final grade achieved for this course is less than 70%, a second final exam may be written at the discretion of the professor for this course. The second exam will be averaged with the first exam to determine the resulting exam mark, and the final grade will then be calculated.
- In the event that a second final exam is required, the highest achievable overall grade for this course will be a C
- Any student that requires 100% or greater on a make-up exam to pass the course will not be allowed to write a make-up exam.

Special Needs:

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Special Needs office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

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.

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.

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.

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

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.

