

**SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY  
SAULT STE. MARIE, ONTARIO**



Sault College

**COURSE OUTLINE**

**COURSE TITLE:** Navigation 1  
**CODE NO. :** AVT112-1   **SEMESTER:** One  
**PROGRAM:** Aviation Technology (Flight)  
**AUTHOR:** Louis St Pierre  
**DATE:** Sept 2005                   **PREVIOUS OUTLINE DATED:** May 2004

**APPROVED:**

\_\_\_\_\_    DATE  
**DEAN**

**TOTAL CREDITS:** 1  
**PREREQUISITE(S):** none  
**HOUR/WEEK:** 1

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**I. COURSE DESCRIPTION:**

This course covers most of the theory and some practical application of Dead Reckoning Navigation as required for the Transport Canada Private Pilot Written Exam (PPAER)

**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 elements required for navigation

Potential Elements of the Performance:

Geographical Coordinates, Time and longitude, Time zones, Great circle and Rhumb lines

2. Understand Earth's magnetism

Potential Elements of the Performance:

Variation, converting from True to Magnetic, The Magnetic Compass, compass errors, magnetic dip

3. Identify and interpret Aeronautical Charts and Publications

Potential Elements of the Performance:

VNC, VTA, WAC, LO, CFS, basic chart information

4. Understand and apply the principles of Dead Reckoning Navigation

Potential Elements of the Performance:

Departure procedures, drift correction, groundspeed calculations, ETA and ETE, arrival procedures

5. Prepare a navigation chart for dead reckoning navigation

Potential Elements of the Performance:

Using plotting instruments to prepare a chart that can be used by a pilot/navigator

6. Understand and apply Mental Dead Reckoning Techniques

Potential Elements of the Performance:

Maximum drift, using MDR techniques to calculate drift correction, groundspeed and ETE

7. Understand and apply basic theory regarding the VHF Omni Range

Potential Elements of the Performance:

The VOR, receiver, serviceability checks, orientation and homing

8. Understand and apply the theory and techniques of dead reckoning navigation required for the completion of the navigation portion of the Transport Canada Private Pilot Exam

Potential Elements of the Performance:

All topics learned in this semester is for preparing the student for the Private Pilot Written exam and lays the foundation for the Commercial Exam.

**III. TOPICS:**

1. Navigation basics
2. Earth's Magnetism
3. Aeronautical charts and publications
4. Dead Reckoning Navigation
5. Chart Preparations
6. Mental Dead Reckoning
7. The VOR
8. Preparation for the Transport Canada Private pilot exam

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

From the Ground Up  
Sault Ste Marie VNC  
Toronto VNC  
Toronto VTA  
Aeronautical Information Publication (AIP)  
Navigational Plotting Instruments  
Jeppesen CR-5 Flight Computer

## V. EVALUATION PROCESS/GRADING SYSTEM:

Enter description of how they will be graded

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: 30% for quizzes, 30% for all tests prior to the final exam and 40% 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
- Students that **do not have their charts and plotting instruments** with them in class will not be able to participate in exercises that may be assigned in class by the Professor. This will seriously reduce their ability for success. For this reason, students that do not have their charts and plotting instruments when the Professor calls for them **will have 1% deducted from their final mark for every occurrence**
- 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 **deferral** of a test for compassionate reasons. **Compassionate Grounds** for deferral 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.

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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%	3.00
B	70 - 79%	2.00
C	assigned if a make-up exam was required to complete the course	0.00
F (Fail)	below 70%	
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.

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