

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE

COURSE TITLE: Safety and Human Factors

CODE NO. : AVT378-3

SEMESTER: Seven

PROGRAM: Aviation Technology (Flight)

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DATE: Jan 2015

PREVIOUS OUTLINE DATED: Jan 2013

APPROVED:



CHAIR



DATE

TOTAL CREDITS: 4

PREREQUISITE(S): AVT248

HOURS/WEEK: 4

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COURSE DESCRIPTION:**I.**

This course will focus on safety defence strategies, which can, if applied, reduce the likelihood of you being involved in an incident or an accident. These safety defence strategies will be developed from a personal level, a multi crew level and an organizational level.

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

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

1. Develop personal defense strategies to reduce the occurrence of unsafe acts.
Potential Elements of the Performance:
 - Investigate an accident to identify failures in both the pre-condition and productive activity levels (Reason's model).
 - Develop personal strategies which can help you avoid the same pitfall.
 - Explain how you intend to apply your personal defense strategy.
2. Apply the process of Single Pilot Resource Management (SRM).
Potential Elements of the Performance:
 - Definition and goal of Single Pilot Resource Management (SRM).
 - Application of the 5 concepts
 - The "5P" check
3. Assess his or her behaviour markings indicating the application of single pilot human factors for a managed flight.
Potential Elements of the Performance:
 - Effective lookout.
 - Maintains situation awareness.
 - Assess situations and make decisions.
 - Sets priorities and manage tasks.
 - Maintains effective communications and interpersonal relationships.
4. Explain the rationale and process in applying threat and error management.
Potential Elements of the Performance:
 - Definitions.
 - Types of threats.
 - Types of errors.
 - Handling threats, errors and undesired aircraft states.
5. Effectively participate on a team or in a crew.
Potential Elements of the Performance:
 - Communicate effectively to make decisions and manage resources.
 - Provide leadership and followership.
 - Establish priorities to manage workload.
 - Be aware of how decisions related to problem solving fit in the big picture.
 - Resolve conflicts.
 - Provide constructive critiques.
 - Manage threats to reduce or trap errors.

6. Explain industry training initiatives and strategies to reduce accidents.
Potential Elements of the Performance
 - The industries safety record - where we are now; the improvements made over the last twenty years.
 - The why, where and how to reduce the likelihood of the major killers in aviation today (Loss of control (LOC), Controlled Flight into Terrain (CFIT), Approach and Landing Accident Reduction (ALAR).
7. Explain the role safety management programs (systems) play in improving the efficiency and safety of complex systems.
Potential Elements of the Performance:
 - The components of SMS.
 - The regulatory framework for SMS in Canada.
 - The role of the safety manager.
 - Qualifications of a human factors specialist
 - Appropriate level of human factor training for an organization
 - The use of reporting systems to provide a proactive approach to reducing incidents and accidents.
 - Safety culture
8. Effectively apply CRM concepts in a multi crew environment
Potential Elements of the Performance:
 - Two crew standard operating procedures for the Piper Seminole or Zlin 242L.
 - FTD labs (5 – FTD missions of at least 1.0 hour duration for each mission).
 - FTD two crew evaluation.

III. TOPICS:

1. Personal Defences
2. Single Pilot Resource Management
3. Single Pilot Human Factors
4. Threat And Error Management
5. Teams and Team Building
6. Communications
7. Situational Awareness
8. Leadership/Followership
9. Interpersonal Skills
10. Critique
11. Safety Management Systems
12. Loss of Control
13. Controlled Flight into Terrain

14. Approach and Landing Accident Reduction
15. Two Crew Standard Operating Procedures

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

- 1) Human Factors for Aviation - Advanced Handbook / Published by Transport Canada
ISBN # 0-660-16656-9
- 2) Internet Access

ADDITIONAL RESOURCES/TEXTS/MATERIALS:

Your Sault College Library is an excellent resource!

Web Links:

A.I.M. – aeronautical information manual

<http://www.tc.gc.ca/eng/civilaviation/opssvs/aviationsafety-menu.htm>

<http://www.faa.gov/pilots/safety/pilotsafetybrochures/>

<http://flightsafety.org/>

<http://www.airforce.forces.gc.ca/en/flight-safety/index.page>

http://www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_91346

http://www.skybrary.aero/index.php/Main_Page

V. EVALUATION PROCESS/GRADING SYSTEM:

The student will be assessed by a combination of attendance and deportment, assignments, simulator labs, CRM evaluation and a final exam. Weighting will be as follows: assignments 1 & 2 – 20%, assignment 3 – 5%, FTD labs – 5%, FTD evaluation – 15%, term test(s) – 15%, and the final exam – 40%. A minimum grade of “B” is required to pass the course. No re-write or make-up tests will be permitted except for compassionate reasons as described below.

- Unexcused absences may result in 2% deduction of the final mark for each occurrence, arriving for class late may result in a 1% deduction of the final mark for each occurrence, and violations of the dress code may result in a 1% deduction of the final mark for each occurrence. Refer to the SOP Section 10 for dress code policies.
- 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 SOP General section, and will be adhered to.

The following semester grades will be assigned to students:

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 – 100%	
A	80 – 89%	4.00
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	below 70%	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
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. *For all AVT and AVF classes there is an additional incentive not to miss class. Please refer to Section V Evaluation Process/Grading System for further information.*

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal and form part of this course outline.