SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE:	Instruments and Operations		
CODE NO. :	AVT364 Advanced Aerodynamics	Semester:	One
PROGRAM:	Aviation Technology (Flight)		
AUTHOR:	John Portas M.B.A., M.P.A. Extension 2518 Room B1230 Microsoft Outlook - john.portas@saultcollege.ca WebCT/LMS		
DATE:	Sept.1, 2007	PREVIOUS OUTLINE DATED:	New

APPROVED: _____ _____

DEAN **DATE**

TOTAL CREDITS: 1

PREREQUISITE(S): N/A

HOURS/WEEK: 1

I. COURSE DESCRIPTION:

The course covers a wide range of topics including subsonic, transonic, supersonic, hypersonic and orbital flight with the aim of giving the student some historical appreciation of the great amount of scientific and engineering investigation and discovery that has been made to advance flight to its current stage of development and the effort needed to push it further.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Fundamental Physical Quantities of a Flowing Gas
2. The Source of All Aerodynamic Forces
3. Equation of State for a Perfect Gas
4. Continuity, Incompressible Flow, Compressible Flow and Momentum Equation
5. Airflow characteristics of the boundary layer of air over airfoils
6. Design of aircraft and the need to use coefficients in calculations
7. Problems of transonic airflow and the design of supersonic aircraft
8. Dynamics of Stability and Control
9. Problems of hypersonic flight and the use of basic trajectory calculations
10. Mechanics of Propulsion
11. Design of Hypersonic Vehicles

III. TOPICS:

1. Fundamental Physical Quantities of a Flowing Gas
2. The Standard Atmosphere
3. Advanced Aerodynamics
4. Airfoils, Wings, and Other Aerodynamic Shapes
5. Elements of Airplane Performance
6. Principles of Stability and Control

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

- Aerodynamics For Naval Aviators
- Handouts
- Power Point through WebCT/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: 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 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.
- 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:

Grade	**Definition**	*Grade Point Equivalent*
A+	90 – 100%	4.00
A	80 – 89%	
B	70 - 79%	3.00
C	60 - 69%	2.00

D	50 – 59%	1.00
F (Fail)	49% and below	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:

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 703 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.

Communication:
The College considers ***WebCT/LMS*** 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 the ***Learning Management System*** communication tool.

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.

<*include any other special notes appropriate to your course*>

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.