COURSE OUTLINE: AVT364 - AERODYNAMICS

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Course Code: Title	AVT364: AERODYNAMICS
Program Number: Name	4061: AVIATION TECHNOLOGY
Department:	AVIATION TECHNOLOGY
Semesters/Terms:	18F
Course Description:	This course expands on the basic concepts of lift/drag, stability, performance and high-speed flight, thrust and power performance. The emphasis is on applying a more mathematical treatment to quantify the analysis of aerodynamics. The course combines science and a practical operational approach that is understandable from the standpoint of a pilot.
Total Credits:	3
Hours/Week:	3
Total Hours:	45
Prerequisites:	AFT130, AVT252, AVT253, AVT257, AVT259
Corequisites:	There are no co-requisites for this course.
This course is a pre-requisite for:	AFT370, AVT370, AVT375, AVT377, AVT378
Essential Employability Skills (EES) addressed in this course:	EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience. EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication. EES 3 Execute mathematical operations accurately. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 6 Locate, select, organize, and document information using appropriate technology and information systems. EES 7 Analyze, evaluate, and apply relevant information from a variety of sources. EES 8 Show respect for the diverse opinions, values, belief systems, and contributions of others. EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals. EES 10 Manage the use of time and other resources to complete projects. EES 11 Take responsibility for ones own actions, decisions, and consequences.
Course Evaluation:	Passing Grade: 70%, B
Other Course Evaluation & Assessment Requirements:	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. 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. Make-up tests are not permitted except in accordance with section VI of this outline.
ÃƒÆ`Ã†`Ãƒ`Ã`Â¢ÃƒÆ`Ã`Â¢`Ãƒ`Ã`Â¬ÃƒÆ``Ãƒ`Ã`Â¢ 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
ÃƒÆ`Ã†`Ãƒ`Ã`Â¢ÃƒÆ`Ã`Â¢`Ãƒ`Ã`Â¬ÃƒÆ``Ãƒ`Ã`Â¢ Quizzes will be given without prior notice.
ÃƒÆ`Ã†`Ãƒ`Ã`Â¢ÃƒÆ`Ã`Â¢`Ãƒ`Ã`Â¬ÃƒÆ``Ãƒ`Ã`Â¢ 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.
ÃƒÆ`Ã†`Ãƒ`Ã`Â¢ÃƒÆ`Ã`Â¢`Ãƒ`Ã`Â¬ÃƒÆ``Ãƒ`Ã`Â¢ 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.
ÃƒÆ`Ã†`Ãƒ`Ã`Â¢ÃƒÆ`Ã`Â¢`Ãƒ`Ã`Â¬ÃƒÆ``Ãƒ`Ã`Â¢ Dates of tests will be announced at least 1 week in advance.
ÃƒÆ`Ã†`Ãƒ`Ã`Â¢ÃƒÆ`Ã`Â¢`Ãƒ`Ã`Â¬ÃƒÆ``Ãƒ`Ã`Â¢ 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 ÃƒÆ`Ã†`Ãƒ`Ã`Â¢ÃƒÆ`Ã`Â¢`Ãƒ`Ã`Â¬ 100% 4.00
A 80 ÃƒÆ`Ã†`Ãƒ`Ã`Â¢ÃƒÆ`Ã`Â¢`Ãƒ`Ã`Â¬ 89%
B 70 - 79% 3.00
C 60 ÃƒÆ`Ã†`Ãƒ`Ã`Â¢ÃƒÆ`Ã`Â¢`Ãƒ`Ã`Â¬ 69.4% 2.00
D 50 ÃƒÆ`Ã†`Ãƒ`Ã`Â¢ÃƒÆ`Ã`Â¢`Ãƒ`Ã`Â¬ 59% 1.00
F (Fail) 49% and below 0.00
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.

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.

Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
Upon successful completion of this course, the student will demonstrate the ability to apply a 1. Fundamental Physical Quantities of a Flowing Gas 2. 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	Upon successful completion of this course, the student will demonstrate the ability to relate 1. The fundamental Physical Quantities of a Flowing Gas 2. The source of All Aerodynamic Forces 3. The equation of State for a Perfect Gas 4. The Continuity, Incompressible Flow, Compressible Flow and Momentum Equations 5. The airflow characteristics of the boundary layer of air over airfoils

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight	Course Outcome Assessed
FINAL EXAM	40%	
MIDTERM EXAM	30%	
QUIZZES	30%	

Date: July 30, 2018

Please refer to the course outline addendum on the Learning Management System for further information.