COURSE OUTLINE: AVT364 - AERODYNAMICS

Prepared: Paul Bursche
Approved: Greg Farish, Chair, Aviation Technology - Flight

Course Code: Title	AVT364: AERODYNAMICS
Program Number: Name	4061: AVIATION TECHNOLOGY
Department:	AVIATION TECHNOLOGY
Academic Year:	2023-2024
Course Description:	The course combines science and a practical operational approach that is understandable from the standpoint of a pilot. Some of the topics included are Newton`s basic equations of motion, the three forces (lift, drag, and weight) that act on a glider, and finally, the four forces that act on a powered airplane. Because aerodynamics involves both the motion of the object and the reaction of the air, there will be some devotion to the basic gas properties and how those properties change through the atmosphere.
Total Credits:	3
Hours/Week:	3
Total Hours:	45
Prerequisites:	AVT375
Corequisites:	There are no co-requisites for this course.
This course is a pre-requisite for:	AVT370
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**4061 - AVIATION TECHNOLOGY** VLO 1 Aviation Technology - Flight
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 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 A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Other Course Evaluation & Assessment Requirements:	The student will be assessed by a combination of attendance, cumulative project, quizzes, midterm and a final exam. Weighting of each will be as follows: 30% for quizzes, 10% for the cumulative project, 30% for the midterm, 30% 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. 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. - 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. 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 - 69.4% 2.00 D 50 - 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
1. Understand the importance Newton`s Laws	

	of Motion and how these laws apply to aircraft motion. Relate these laws to the four forces that act on a powered aircraft. 2. Examine the working parts of an aircraft and understand their place and part in the improvement and design of overall aircraft aerodynamics. 3. Explore the atmospheric characteristics on Earth and comprehend its effect in the design and capabilities of aircraft. 4. Recall airflow characteristics of an airfoil and define related terminology. 5. Calculate mach number, examine the problems of transonic airflow and the design of supersonic aircraft. 6. Understand the concepts surrounding gliders and explore the three forces acting upon it.

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Cumulative Project	10%
Final Exam	30%
Midterm Exam	30%
Quizzes	30%

Date: June 1, 2023

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