COURSE OUTLINE: AVF122 - NAVIGATION I AND II

Prepared: Paul Bursche
Approved: Greg Farish, Dean, Aviation

Course Code: Title	AVF122: NAVIGATION I & II
Program Number: Name	4061: AVIATION TECHNOLOGY
Department:	AVIATION TECHNOLOGY
Academic Year:	2024-2025
Course Description:	This course starts with the basic elements involved in Dead Reckoning Navigation. These elements are then combined to enable pilots-in-training to pass the navigation section of the Transport Canada Private Pilot written exam and to learn the techniques that pilots use for navigating in flight. This knowledge is also the basis for the Transport Canada Commercial Written exam in second year, and is also preparatory ground instruction for the Private Pilot Licence
Total Credits:	2
Hours/Week:	2
Total Hours:	30
Prerequisites:	ATQ112
Corequisites:	There are no co-requisites for this course.
This course is a pre-requisite for:	AFT130, AFT131, AFT132, AVF242
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 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:	To be excused from class due to illness or other unforeseen circumstances, students must email the faculty member before the start of class. Students may request a deferment of a test for compassionate reasons, including but not limited to the death of an immediate family member, personal illness, or a recent diagnosis of a serious illness in a family member. Make-ups will not be permitted after the fact for compassionate reasons. Test dates will be announced at least one week in advance. If a faculty member determines that a student is at risk of not succeeding academically and has exhausted all available strategies, the students` contact information may be confidentially provided to Student Services to offer additional support. Any student wishing to restrict the sharing of their information should inform the coordinator or faculty member. Late submissions of navigation assignments will incur a penalty of 25% of the total mark for each day past the deadline.
Books and Required Resources:	Flight Computer Electronic (CX-3 or E6B) and/or manual CIRCULAR E6-B flight computer Navigation Plotting Instrument Douglas protractor, ICAO ruler Sault Ste Marie VFR Navigation Chart (VNC) AIR 5001 VNC

Course Outcomes and Learning Objectives:

Course Outcome 1	**Learning Objectives for Course Outcome 1**
This course outcome covers Earth`s magnetism and its impact on navigation, including magnetic variation, deviation, and compass accuracy.	This learning objective focuses on understanding magnetic variation and the process of converting between true and magnetic headings for accurate navigation. Students will also examine the principles of the magnetic compass, common compass errors, and the effects of magnetic dip on instrument reliability.
Course Outcome 2	**Learning Objectives for Course Outcome 2**
This course teaches students to apply dead reckoning techniques for navigation by calculating position, direction, and distance using time, speed, and heading.	This learning objective focuses on developing the skills to prepare VFR navigation charts and perform accurate navigation calculations, including headings, distances, and estimated times. Students will also learn to retrieve essential airport and airspace information from aeronautical publications, such as the CFS and VNC.
Course Outcome 3	**Learning Objectives for Course Outcome 3**
This course equips students with the skills to plan and prepare for a cross-country flight, building a strong foundation for advanced flight training in AFT130 during the summer.	This learning objective involves completing two comprehensive projects designed to teach students the proper use of the Sault College navigation log. Through these projects, students will develop the skills necessary to plan and prepare for a cross-country flight, ensuring accuracy in navigation and route planning.
Course Outcome 4	**Learning Objectives for Course Outcome 4**

	This course provides students with an understanding of radio theory and the fundamental principles behind radio navigation aids, including their operation and application in flight.	This learning objective covers the basics of radio theory and the functionality of key navigation and communication systems, including VOR, transponders, and GPS. Students will learn how these systems support accurate navigation, enhance situational awareness, and ensure effective communication during flight operations.

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Exam	40%
Projects	10%
Tests	50%

Date: December 5, 2024

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