

Erindale College

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| Assessment Period: | 2021 S2 |
| Course: | FLIGHT |
| Unit: | Commercial Aviation (1.0) |
| Accreditation: | T |
| Year: | 12 |

Unit Goals

- demonstrate depth and breadth of scientific knowledge relevant to the aviation industry
- critically research, analyse and evaluate aviation law and procedures from a variety of sources to solve practical and theoretical problems of aircraft operation
- investigate the relationship between requirements outlined in legislation and a range of operational publications
- apply an understanding of official documents such as Flight Notifications and SAR times to flight planning requirements

Content Description

Science Inquiry Skills

- identify, research and construct questions for investigation concerning the design and structure of aircraft; propose hypotheses; and predict possible outcomes arising from various designs
- represent and organise data in meaningful and useful ways, including using appropriate SI units and symbols, to identify trends, patterns and relationships
- investigate a range of aviation and media texts, and evaluate processes, claims and conclusions by considering the quality of available evidence; and use reasoning to construct scientific arguments
- select, use and interpret appropriate mathematical models, including graphs and tables of data, to solve problems and make predictions concerning aircraft performance

Science as a Human Endeavour

- analyse and critique the importance of aviation law to aircraft operations and safety
- analyse and describe the roles of Air Traffic Control and CENSAR in the maintenance of safety and the obligation on pilots to maintain safe operations
- critique the ethical, legal and environmental issues that influence the safe use of aircraft
- identify social, economic, cultural and ethical considerations that have influenced the adoption of new technology in aviation
- apply commercial aviation knowledge to predict and solve problems associated with the various classifications of commercial flying
- understand the practical and theoretical problems faced by commercial pilots using scientific methods to solve basic fuel and time problems associated with flying

Science Understanding

- explain the differences between licence types and the requirements for IFR flight
- describe and calculate the differences between MACH number and other measures of speed
- describe the effect of bow waves in supersonic flight and explain how the sonic boom is generated using principles drawn from the Doppler effect
- analyse and apply complex loading and take-off performance charts (CPL level) for fixed-wing and

rotary wing aircraft

- calculate climb, cruise and descent performance for specific aircraft and apply to flight planning
- calculate apply Equi-Time Points and Point of No Return (ETP's and PNR's) to flight planning tasks
- investigate and explain the special design features related to multi engine aircraft and the consequent operational requirements
- discuss the application of Air Law to specific operational requirements and limitations
- identify factors in effective decision-making and cockpit workload management
- research and explain helicopter structures and demonstrate understanding of the benefits of different planforms
- compare various anti-torque configurations and controls such as the cyclic, the collective, the anti-torque pedals, and the throttle to fixed-wing aircraft
- analyse the effects of torque and gyroscopic effects on rotary-wing craft; including precession, auto rotation and rotational velocities
- demonstrate an understanding of lift and drag for rotor blades and pressure patterns produced by rotors
- research and explain the effect of factors such as translational lift, transverse flow effect and retreating blade stall on aircraft performance
- investigate the operational reasons for airspace limitations, altitudes, taxiing and circuit procedures for fixed-wing and rotary wing aircraft

Assessment Tasks

| Name | Due Date | Weighting |
|--------------|-------------|-----------|
| Assignment 1 | 30 August | 20% |
| Test 1 | 1 September | 30% |
| Assignment 2 | 8 November | 20% |
| Test 2 | 10 November | 30% |

School Assessment Information

For penalties for late and non-submission of work

See [BSSS Policy and Procedure Manual 4.3.10](#) for further information.

For academic integrity

See [BSSS Policy and Procedure Manual 4.3.12](#) for further information.

For appeals processes

See [BSSS Policy and Procedure Manual 7.2](#) for further information.

For moderation procedures (internal and external)

See [BSSS Policy and Procedure Manual 5](#) for further information.

For meshing procedures

See [BSSS Policy and Procedure Manual 5.4.1](#) for further information.

For method of unit score calculation

See [BSSS Policy and Procedure Manual 4.3.6.2](#) for further information.

For procedures for calculating course scores

See [BSSS Policy and Procedure Manual 4.3.13.2](#) for further information.

Achievement Standards for FLIGHT T - Year 12

| | <i>A student who achieves an A grade typically</i> | <i>A student who achieves a B grade typically</i> | <i>A student who achieves a C grade typically</i> | <i>A student who achieves a D grade typically</i> | <i>A student who achieves an E grade typically</i> |
|--|---|--|---|---|---|
| Concepts, Models & Applications | <ul style="list-style-type: none"> critically analyses the properties and functions of system components, processes and interactions, and the interplay and effects of factors across a range of scales evaluates applications, limitations, and predictions of theories and models to explain systems and create solutions, with evidence, in unfamiliar contexts evaluates evidence with reference to critical analysis of models and/or theories, and develops evidence-based conclusions and evaluates limitations | <ul style="list-style-type: none"> analyses the properties and functions of system components, processes and interactions, and the interplay and effects of factors across a range of scales analyses applications, limitations, and predictions of theories and models to explain systems and create plausible solutions, with evidence in familiar contexts analyses evidence with reference to models and/or theories, and develops evidence-based conclusions and discusses limitations | <ul style="list-style-type: none"> explains the fundamental properties and functions of system components, processes and interactions, and the effects of factors across a range of scales explains applications, limitations, and predictions of theories and models to explain systems and create plausible solutions in familiar contexts describes evidence with reference to models and/or theories, and develops evidence-based conclusions and identifies limitations | <ul style="list-style-type: none"> describes the fundamental properties and functions of system components, processes and interactions, and the effects of one or more factors describes the nature, functions, limitations and applications of theories and models to create solutions to problems with supporting evidence describes evidence, and develops conclusions with some reference to models and/or theories | <ul style="list-style-type: none"> identifies the fundamental properties and functions of system components, processes and interactions, and some affective factors identifies the nature, functions, limitations and applications of theories and models, and suggest solutions to problems with supporting evidence identifies evidence, and asserts conclusions with little or no reference to models and/or theories |
| Contexts | <ul style="list-style-type: none"> critically analyses epistemology, role of peer review, collaboration, and technology in developing knowledge critically analyses the influence of social, economic, ethical and cultural factors on Science | <ul style="list-style-type: none"> analyses epistemology, role of peer review and technology in developing knowledge analyses the influence of social, economic, ethical and cultural factors on Science | <ul style="list-style-type: none"> explains epistemology, role of peer review and technology in developing knowledge explains the influence of social, economic, ethical and cultural factors on Science | <ul style="list-style-type: none"> describes role of peer review and technology in developing knowledge describes the influence of social, economic, ethical and cultural factors on Science | <ul style="list-style-type: none"> identifies that scientific knowledge has changed over time identifies the influence of social, economic, ethical and cultural factors on Science |
| Inquiry Skills | <ul style="list-style-type: none"> designs, conducts and improves safe, ethical and original inquiries individually and collaboratively, that collect valid, reliable data in response to a complex question critically analyses cause and correlation, anomalies, reliability and validity of data and representations, and critically analyses errors evaluates processes and claims, and provides a critique based on evidence, and critically analyses alternatives reflects on own thinking and evaluates planning, time management, use of appropriate work strategies communicates concisely, effectively and accurately, with scientific literacy in a range of modes, representations, and genres for specific audiences and purposes, and accurate referencing | <ul style="list-style-type: none"> designs, conducts and improves safe, ethical inquiries individually and collaboratively, that collect valid, reliable data in response to a question analyses cause and correlation, anomalies, reliability and validity of data and representations, and analyses errors explains processes and claims, and provides a critique with reference to evidence, and analyses alternatives reflects on their own thinking and analyses planning, time management, use of appropriate work strategies communicates clearly and accurately, with scientific literacy in a range of modes, representations and genres for specific audiences and purposes, and accurate referencing | <ul style="list-style-type: none"> plans and conducts safe, ethical inquiries individually and collaboratively, that collect valid data in response to a familiar question describes causal and correlational relationships, anomalies, reliability and validity of data and representations, and discusses common errors describes processes and claims, and identifies alternatives with reference to reliable evidence reflects on their own thinking and explains planning, time management, use of appropriate work strategies communicates accurately demonstrating scientific literacy, in a range of modes, representations, and genres for specific purposes, and mostly consistent referencing | <ul style="list-style-type: none"> follows a procedure to conduct safe, ethical inquiries individually and collaboratively, to collect data in response to a simple question with varying success describes trends, relationships and anomalies in data, identifies anomalies, and cites sources of error describes processes and claims, and identifies the need for improvements with some reference to evidence reflects on their own thinking, with reference to planning and the use of appropriate work strategies communicates demonstrating some scientific literacy, in a range of modes, representations, and genres with some evidence and inconsistent referencing | <ul style="list-style-type: none"> follows a procedure to conduct safe, ethical inquiries individually and collaboratively, to collect data with little or no connection to a question identifies trends and relationships in data with reference to sources of error identifies processes and the need for some improvements, with little or no reference to evidence reflects on their own thinking with little or no reference to planning, time management, and use of work strategies communicates demonstrating limited scientific literacy, in a range of modes and representations, with inconsistent and inaccurate referencing |