AVAT13028 *Advanced Flight Theory 1*
Term 1 - 2025

Profile information current as at 12/11/2026 11:42 am

All details in this unit profile for AVAT13028 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student).The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

Corrections

Unit Profile Correction added on 11-03-25
Please note that as this is the first offering of this unit, the unit delivery may slightly deviate from the schedule presented in the unit profile. Please refer to Moodle for updated topic and presentation information.

General Information

Overview

Advanced Flight Theory 1 provides you with advanced aviation theoretical knowledge aligned with Civil Aviation Safety Authority (CASA) Airline Transport Pilot Licence (ATPL) curriculum (Part 61 Schedule 3). You will learn about the principles of local, national and international air navigation and aviation laws and regulatory frameworks in various jurisdictions. You will study aerodynamics and aircraft systems, focusing on aircraft technical systems and transonic flight in depth. The unit content is organised into various study modules corresponding to CASA Part 61 Schedule 3 exams. During the term, you are encouraged to take the CASA examinations soon after completing the relevant modules.

Details

Career Level: *Undergraduate*
Unit Level: *Level 3*
Credit Points: *12*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.25*

Pre-requisites or Co-requisites

Prerequisites - AVAT12010 AND AVAT12011
Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the Assessment Policy and Procedure (Higher Education Coursework).

Offerings For Term 1 - 2025

- Cairns
- Online

Attendance Requirements

All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Website

This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.

Class and Assessment Overview

Recommended Student Time Commitment

Each 12-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 25 hours of study per week, making a total of 300 hours for the unit.

Class Timetable

Regional Campuses
Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

Metropolitan Campuses
Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. IREX Test (Online Test)
Weighting: 25%
2. Navigation & Law Test (Online Test)
Weighting: 25%
3. Systems Test (Online Test)
Weighting: 25%
4. Portfolio (Portfolio)
Weighting: 25%

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the University's Grades and Results Policy for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the CQUniversity Policy site.
You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Academic Progression Policy and Procedure
- Student Refund and Credit Balance Policy and Procedure
- Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the CQUniversity Policy site.

Unit Learning Outcomes

On successful completion of this unit, you will be able to:

1. Interpret global navigation chart projections, including performing time zone and airspeed calculations
2. Critique air law applying to pilots, flight crew and the aviation industry
3. Analyse aerodynamic forces and aircraft systems in turbo-fan and turbo-prop aircraft
4. Collaborate effectively to solve problems in air operations considering navigation, air law, and aerodynamics and aircraft systems.

N/A

Alignment of Learning Outcomes, Assessment and Graduate Attributes

— N/A Level | • Introductory Level | • Intermediate Level | • Graduate Level | ◦ Professional Level | ◦ Advanced Level

Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	2	3	4
1 - Online Test - 25%	•			
2 - Online Test - 25%		•		
3 - Online Test - 25%			•	
4 - Portfolio - 25%	•	•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
1 - Communication		•		•
2 - Problem Solving			•	
3 - Critical Thinking	•	•	•	
4 - Information Literacy	•	•		
5 - Team Work				•
6 - Information Technology Competence	•			
7 - Cross Cultural Competence				•
8 - Ethical practice		•		
9 - Social Innovation				•
10 - Aboriginal and Torres Strait Islander Cultures				

Textbooks and Resources

Textbooks

There are no required textbooks.

Additional Textbook Information
Relevant aviation theory documents/texts as prescribed by the unit coordinator.

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)

Referencing Style

All submissions for this unit must use the referencing style: American Psychological Association 7th Edition (APA 7th edition)
For further information, see the Assessment Tasks.

Teaching Contacts

David Copley Unit Coordinator
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Steve Leib Unit Coordinator
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Schedule

Week 1 - 10 Mar 2025

Module/Topic	Chapter	Events and Submissions/Topic
Instrument Rating Theory (IREX) Workshop 1 Introduction and Unit Overview Air / Pressure Instruments Gyroscopes and Compasses Workshop 2 Ground Based Navigation Aids Workshop 3 Radar		

Week 2 - 17 Mar 2025

Module/Topic	Chapter	Events and Submissions/Topic

Instrument Rating Theory (IREX) Workshop 1 IFR Pilot Qualification Aviation Documentation Preparing for IFR Flight Workshop 2 IFR Departure Procedures IFR En-route IFR Arrival Procedures Instrument Approaches Workshop 3 Instrument Approaches (cont.) Transition to Visual Segments and maneuvering		

Week 3 - 24 Mar 2025

Module/Topic	Chapter	Events and Submissions/Topic
Instrument Rating Theory (IREX) Workshop 1 Instrument Flying Technique Radial Scans, selective Radial Scans Correct Instrument Interpretation Abnormal, Non-Normal Operation Workshop 2 Auto Flight Systems Performance Based Navigation (PBN) Reduced Vertical Separation Minimum (RVSM) Workshop 3 Area Navigation (RNAV) Inertial Navigation INS and IRS GNSS		

Week 4 - 31 Mar 2025

Module/Topic	Chapter	Events and Submissions/Topic
Instrument Rating Theory (IREX) and ATPL(A) Navigation ANAV Workshop 1 IREX Human Factors (HF) Workshop, understanding the Human condition and interpreting HF Non-Technical Standards Workshop 2 ANAV Introduction and Review Review: Air / Pressure Instruments Review: Gyroscopes and Compasses Review: Ground Based Navigation Aids Review: Radar Using a Navigation computer (CR3) to calculate Mn and TAS Workshop 3 Radio Waves Communication VHF, HF SAT and DATA		IREX Test Due: Week 4 Friday (4 Apr 2025) 11:59 pm AEST

Week 5 - 07 Apr 2025

Module/Topic	Chapter	Events and Submissions/Topic

ATPL(A) Navigation ANAV
Workshop 1
Introduction and Overview
Review: Inertial Navigation INS and IRS
Workshop 2
Introduction and Overview
GNSS Satellite Based Navigation
Workshop 3
Maps and Charts 1

Vacation Week - 14 Apr 2025

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 21 Apr 2025

Module/Topic	Chapter	Events and Submissions/Topic
ATPL(A) Navigation ANAV and Flight Rules and Air Law (AALW) Workshop 1 ANAV Maps and Charts 2 Workshop 2 ANAV Electronic Flight Information System (EFIS) Review: Performance Based Navigation (PBN) Review: Area Navigation (RNAV) Workshop 3 AALW Incorporating AALW into everyday operation		

Week 7 - 28 Apr 2025

Module/Topic	Chapter	Events and Submissions/Topic
ATPL(A), Aerodynamics, Systems and Aircraft General Knowledge (AASA) Workshop 1 Terminology Subsonic Aerodynamics Aerodynamic Forces Bernoulli's Theorem Workshop 2 Transonic Aerodynamics Workshop 3 Transonic Aerodynamics (cont.)		

Week 8 - 05 May 2025

Module/Topic	Chapter	Events and Submissions/Topic
ATPL(A), Aerodynamics, Systems and Aircraft General Knowledge (AASA) Workshop 1 Aerodynamic Performance Gas Turbine Theory Workshop 2 Gas Turbine Theory Workshop 3 Airframe and Systems		Navigation & Law Test Due: Week 8 Friday (9 May 2025) 11:59 pm AEST

Week 9 - 12 May 2025

Module/Topic	Chapter	Events and Submissions/Topic

ATPL(A), Aerodynamics, Systems and Aircraft General Knowledge (AASA) Workshop 1 Airframe and Systems Workshop 2 Airframe and Systems Workshop 3 Airframe and Systems		

Week 10 - 19 May 2025

Module/Topic	Chapter	Events and Submissions/Topic
ATPL(A), Aerodynamics, Systems and Aircraft General Knowledge (AASA) Workshop 1 Airframe and Systems Workshop 2 Airframe and Systems Workshop 3 Airframe and Systems		

Week 11 - 26 May 2025

Module/Topic	Chapter	Events and Submissions/Topic
ATPL(A), Aerodynamics, Systems and Aircraft General Knowledge (AASA) Workshop 1 Airframe and Systems Workshop 2 Airframe and Systems Workshop 3 Airframe and Systems		

Week 12 - 02 Jun 2025

Module/Topic	Chapter	Events and Submissions/Topic
ATPL(A), Aerodynamics, Systems and Aircraft General Knowledge (AASA) Workshop 1 Airframe and Systems Workshop 2 Airframe and Systems Workshop 3 Airframe and Systems Unit Review		

Review/Exam Week - 09 Jun 2025

Module/Topic	Chapter	Events and Submissions/Topic
		Systems Test Due: Review/Exam Week Friday (13 June 2025) 11:59 pm AEST Portfolio Due: Review/Exam Week Friday (13 June 2025) 11:59 pm AEST

Exam Week - 16 Jun 2025

Module/Topic	Chapter	Events and Submissions/Topic

Term Specific Information

Students are reminded this is a first offering of AVAT13028 combining several units into a modular delivery. The unit provides foundation knowledge for both CASA Instrument Rating Theory and ATPL(A) Syllabus. Students are encouraged to consult the Part 61, MOS Schedule 3 -Required Aeronautical Knowledge Standards. It is expected students will undertake extensive study, revision and practice prior to undertaking external CASA(A) examinations. Feedback is encouraged.

Assessment Tasks

1 Online Test

Assessment Title
IREX Test

Task Description
This test will cover primarily the IREX content, however any content delivered so far in the unit is testable. It will open on Monday of the week that it is due, and will close automatically on Friday at 11:59PM. Students can complete the test any time during this window and have up to 90 minutes to complete it. Please note that the test will close automatically at 11:59PM no matter how much time is remaining, so students are advised to commence the test to allow for the maximum allowed duration.

Assessment Due Date
Week 4 Friday (4 Apr 2025) 11:59 pm AEST

Return Date to Students
No Return Date to Students

Weighting
25%

Minimum mark or grade
50%

Assessment Criteria
This test is a combination of multiple choice and short answer questions.

Referencing Style
American Psychological Association 7th Edition (APA 7th edition)

Submission
Online

Submission Instructions
Submit through the relevant portal in Moodle

Learning Outcomes Assessed
- Interpret global navigation chart projections, including performing time zone and airspeed calculations

2 Online Test

Assessment Title
Navigation & Law Test

Task Description
This test will cover primarily the navigation and law content, however any content delivered so far in the unit is testable. It will open on Monday of the week that it is due, and will close automatically on Friday at 11:59PM. Students can complete the test any time during this window and have up to 90 minutes to complete it. Please note that the test will close automatically at 11:59PM no matter how much time is remaining, so students are advised to commence the test to allow for the maximum allowed duration.

Assessment Due Date
Week 8 Friday (9 May 2025) 11:59 pm AEST

Return Date to Students
No Return Date to Students

Weighting
25%

Minimum mark or grade
50%

Assessment Criteria
This test is a combination of multiple choice and short answer questions.

Referencing Style
American Psychological Association 7th Edition (APA 7th edition)

Submission

Online

Submission Instructions
Submit through the relevant portal in Moodle

Learning Outcomes Assessed
- Critique air law applying to pilots, flight crew and the aviation industry

3 Online Test

Assessment Title
Systems Test

Task Description
This test will cover primarily the aerodynamics, aircraft systems, and aircraft general knowledge, however any content delivered so far in the unit is testable.. It will open on Monday of the week that it is due, and will close automatically on Friday at 11:59PM. Students can complete the test any time during this window and have up to 90 minutes to complete it. Please note that the test will close automatically at 11:59PM no matter how much time is remaining, so students are advised to commence the test to allow for the maximum allowed duration.

Assessment Due Date
Review/Exam Week Friday (13 June 2025) 11:59 pm AEST

Return Date to Students
No Return Date to Students

Weighting
25%

Assessment Criteria
This test is a combination of multiple choice and short answer questions.

Referencing Style
American Psychological Association 7th Edition (APA 7th edition)

Submission
Online

Learning Outcomes Assessed
- Analyse aerodynamic forces and aircraft systems in turbo-fan and turbo-prop aircraft

4 Portfolio

Assessment Title
Portfolio

Task Description
At the beginning of the term, download the Portfolio template from the assessment section of Moodle. During the term, you will be asked to complete a series of activities/exercises related to your lessons. You will record results from these exercises in your portfolio during the term and will turn it in at the end of the unit for assessment.

Assessment Due Date
Review/Exam Week Friday (13 June 2025) 11:59 pm AEST

Return Date to Students
No Return Date to Students

Weighting
25%

Assessment Criteria
You will be assessed on the quality and depth of your answers for each of the exercises.

Referencing Style
American Psychological Association 7th Edition (APA 7th edition)

Submission
Online

Submission Instructions
Submit via the relevant portal on Moodle

Learning Outcomes Assessed
- Interpret global navigation chart projections, including performing time zone and airspeed calculations
- Critique air law applying to pilots, flight crew and the aviation industry

- Analyse aerodynamic forces and aircraft systems in turbo-fan and turbo-prop aircraft
- Collaborate effectively to solve problems in air operations considering navigation, air law, and aerodynamics and aircraft systems.

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the Student Academic Integrity Policy and Procedure. This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?

A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?

A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?

For academic advice and guidance, the Academic Learning Centre (ALC) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?

Be Honest
If your assessment task is done by someone else, it would be dishonest of you to claim it as your own

Seek Help
If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)

Produce Original Work
Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem