



UNSW Course Outline

ZEIT1800 Introduction to Aviation Technology - 2024

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General Course Information

Course Code : ZEIT1800

Year : 2024

Term : Semester 1

Teaching Period : Z1

Is a multi-term course? : No

Faculty : UNSW Canberra

Academic Unit : UC Science

Delivery Mode : In Person

Delivery Format : Standard

Delivery Location : UNSW Canberra at ADFA

Campus : UNSW Canberra

Study Level : Undergraduate

Units of Credit : 6

Useful Links

[Handbook Class Timetable](#)

Course Details & Outcomes

Course Description

This course will introduce students to the world of aviation, encompassing both civil and military operations. The course will answer the question: "What makes an aircraft fly?", in terms of aerodynamics, aircraft performance, aircraft systems and human factors. Our journey will expose

students to the many issues that influence a safe flight, such as, the design and construction of modern aircraft, propulsion systems, airports, air traffic management, training, management and human performance issues. The course will also cover remotely piloted aircraft, simulators and the aviation system of the future.

Course Aims

The aim of this course is to expose students to the global world of aviation. This will include an introduction to a range of aviation related topics encompassing past, present and future civil and military aviation operations.

Relationship to Other Courses

While there is no prerequisite for this course, there will be some assumed knowledge in terms of fundamental high school mathematics and physics. Any assumed knowledge will be revised prior to its use as needed. As such, this course is suitable for any and all students.

This course provides the fundamental knowledge across aviation science, providing a direct link to further courses such as *Fundamentals of Flight*, *Aircraft Systems for Aviators*, *Meteorology and Atmospheric Physics*, *Aircraft and Systems Design*, *Air Traffic Management*, *Airport Operations and Systems*, and the final year thesis.

Course Learning Outcomes

Course Learning Outcomes
CL01 : Summarise the history and development of aviation technology, as well as contemporary issues, and future trends.
CL02 : Explain the basics of aircraft aerodynamics, propulsion, and design.
CL03 : Understand the operational aspects of aviation, including the atmosphere, stability and control, and performance.
CL04 : Apply aviation science and technology knowledge in combination with scientific communication.

Course Learning Outcomes	Assessment Item
CL01 : Summarise the history and development of aviation technology, as well as contemporary issues, and future trends.	<ul style="list-style-type: none">• Weekly Quiz• Laboratory Work• Final Exam
CL02 : Explain the basics of aircraft aerodynamics, propulsion, and design.	<ul style="list-style-type: none">• Weekly Quiz• Final Exam
CL03 : Understand the operational aspects of aviation, including the atmosphere, stability and control, and performance.	<ul style="list-style-type: none">• Laboratory Work• Weekly Quiz• Final Exam
CL04 : Apply aviation science and technology knowledge in combination with scientific communication.	<ul style="list-style-type: none">• Research Discussions• Final Exam

Learning and Teaching Technologies

Moodle - Learning Management System

Learning and Teaching in this course

Weekly course readings and lecture notes will be placed on Moodle throughout the session.

Additional Course Information

Program Learning Outcomes

This course contributes to the following Program Learning Outcomes of the *Bachelor of Science*:

PL01. Demonstrate a broad and deep theoretical and technical knowledge of their scientific disciplines.

PL02. Demonstrate the technical skills required by their discipline including problem solving, field

work, and experimental laboratory work.

PL03. Be able to create new concepts and understanding through the process of scientific inquiry, critical analysis, problem solving, and research.

PL04. Be able to take responsibility for and demonstrate commitment to their own learning, motivated by curiosity and an appreciation of the value of lifelong learning.

PL09. Make appropriate and effective use of information and information technology relevant to their discipline.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Weekly Quiz Assessment Format: Individual	20%	Start Date: Multiple Due Date: Multiple
Research Discussions Assessment Format: Individual	30%	Start Date: Multiple Due Date: Multiple
Laboratory Work Assessment Format: Individual	20%	Start Date: Multiple Due Date: Multiple
Final Exam Assessment Format: Individual	30%	Start Date: Official Exam Period Due Date: Official Exam Period

Assessment Details

Weekly Quiz

Assessment Overview

Each week, a quiz will be complete. The quiz content will be drawn from the material presented in the previous week. This will typically consist of 6 to 8 questions

Course Learning Outcomes

- CL01 : Summarise the history and development of aviation technology, as well as contemporary issues, and future trends.
- CL02 : Explain the basics of aircraft aerodynamics, propulsion, and design.
- CL03 : Understand the operational aspects of aviation, including the atmosphere, stability and control, and performance.

Detailed Assessment Description

Further details will be provided through the course Moodle.

Assessment Length

1 page quiz per week

Submission notes

Handwritten

Assessment information

Further details will be provided through the course Moodle.

Assignment submission Turnitin type

Not Applicable

Research Discussions

Assessment Overview

Submit a fortnightly discussion in the course Moodle for the specified topic. You will be required to submit one original contribution and 2 replies each fortnight. Originals will be due on the Friday, at 17:00, and replies will be due on Sunday at 23:59. Each original contribution is required to be supported by at least 2 scholarly references, and all critical replies must be supported by at least 1 scholarly reference. The original contribution will be approximately 250 to 300 words, with each reply will be 50 to 100 words. Replies should be either critical (but courteous) checking the facts presented, expanding on the information presented, or comparing and contrasting the topic to your original. The intent of the assessment item is to demonstrate a critical analysis of literature and its application to aviation science and technology, in the form of a scientific discussion.

The six fortnightly topics will be –

- History of Aviation
- Meteorology
- Advanced Propulsion Systems
- Contemporary Issues
- Future Technology
- Space

Reference must be provided in text and in a reference list and must conform to the APA 7th Edition referencing style. Any figures or tables utilised must be presented in line (no attachments) and should be numbered and referred according to the APA style.

Course Learning Outcomes

- CL04 : Apply aviation science and technology knowledge in combination with scientific communication.

Detailed Assessment Description

Further details will be provided through the course Moodle.

Assessment Length

500 Words per fortnight

Submission notes

Moodle Forums

Assessment information

Further details will be provided through the course Moodle.

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

Laboratory Work

Assessment Overview

Students will participate in a laboratory program in the Aviation Simulation Lab. This will involve in class practical activities drawn from across the aviation domain, include conventional, unmanned, and space flight, as well as the use of AR and VR technologies. Some prelab activities will be required in preparation, and a worksheet will be required at the completion of the various activities along with the submission of logs and outputs relevant to the activity. Each student will attend a laboratory once a fortnight. Including the anticipated two field schools, there will be 7 laboratory activities, 5 fortnightly activities, and 2 field schools (with the entire class in attendance for each).

Course Learning Outcomes

- CL01 : Summarise the history and development of aviation technology, as well as contemporary issues, and future trends.
- CL03 : Understand the operational aspects of aviation, including the atmosphere, stability and control, and performance.

Detailed Assessment Description

Further details will be provided through the course Moodle.

Depending on availability and military training days, it is anticipated that laboratory activities will occur fortnightly, and the submissions of worksheets and data should happen during the class time; as such, specific dates and times will depend on the lab groups. A final reflective lab summary may be utilised to assess individual performance over the semester.

Assessment Length

Varies for each laboratory activity

Submission notes

Submission in class through Moodle.

Assessment information

See the course Moodle for details of each specific laboratory activity.

Assignment submission Turnitin type

Not Applicable

Final Exam

Course Learning Outcomes

- CL01 : Summarise the history and development of aviation technology, as well as contemporary issues, and future trends.
- CL02 : Explain the basics of aircraft aerodynamics, propulsion, and design.
- CL03 : Understand the operational aspects of aviation, including the atmosphere, stability and control, and performance.
- CL04 : Apply aviation science and technology knowledge in combination with scientific communication.

Detailed Assessment Description

2 hour examination held in the official examination period, worth 30% and covering the entire course content.

Assessment Length

2 hours

Submission notes

Hand written only

Assessment information

Further details will be provided through the course Moodle.

Assignment submission Turnitin type

Not Applicable

General Assessment Information

Marks:

All marks obtained for assessment items during the session are provisional. The final mark as published by the university following the assessment review group meeting is **the only official mark**.

Early Assessments:

By week 4, students will have marks and feedback for the first research forum, 3 of the in class quizzes, and the first lab activity.

Generative AI:

You can use generative AI software in this assessment to the extent specified in the assessment instructions. Any output of generative software within your assessment must be attributed with full referencing.

If the outputs of generative AI such as ChatGPT form part of your submission and is not appropriately attributed, it will be regarded as serious academic misconduct and subject to the standard penalties, which may include 00FL, suspension and exclusion.

* To cite: OpenAI (Year Accessed). ChatGPT. OpenAI. <https://openai.com/models/chatgpt/>

* Please note that the outputs from these tools are not always accurate, appropriate, nor properly referenced. You should ensure that you have moderated and critically evaluated the outputs from generative AI tools such as ChatGPT before submission.

Grading Basis

Standard

Requirements to pass course

Achieve a composite mark of at least 50 out of 100.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 26 February - 1 March	Module	Introduction and History of Flight
Week 2 : 4 March - 8 March	Module	The Atmosphere and Aircraft Anatomy
Week 3 : 11 March - 15 March	Module	Remotely Piloted Aircraft Systems
Week 4 : 18 March - 22 March	Module	Basic Aerodynamics
Week 5 : 25 March - 29 March	Module	Aircraft Accidents and High Speed Flight
Week 6 : 1 April - 5 April	Module	Aircraft Stability and Control
Week 7 : 22 April - 26 April	Module	Piston Engines
Week 8 : 29 April - 3 May	Module	Jet Engines and Props/Rotors
Week 9 : 6 May - 10 May	Module	Helicopters and Aircraft Sustainability
Week 10 : 13 May - 17 May	Module	Defence Aviation Systems and Operations
Week 11 : 20 May - 24 May	Module	Aircraft Performance
Week 12 : 27 May - 31 May	Module	Future Air Transport Systems and Space Systems
Week 13 : 3 June - 7 June	Module	Space Operations and Exam Prep

Attendance Requirements

Assessment activities occur inclass for the laboratories and for the in class quizzes, which are held at the end of selected lectures.

General Schedule Information

Each week will contain a module that covers one or two topics. The topic content will be covered in a lecture on Monday and Thursday, which will be summarised with tutorial questions for student reflection and self assessment.

The Schedule provided here is a draft, and is subject to change due to availability of guest lecturers who can be senior Defence Force personnel.

Monday of Wk 3 and 6 are lost, along with Thursday of Wk7, and Monday of Wk 12 is delivered on Tuesday of Wk 12.

Course Resources

Prescribed Resources

Kermode, A. C. (2012) Mechanics of Flight, 12th Ed, Pearson. ISBN 9780273773511

Hurt, H. H. (2012). Aerodynamics for Naval Aviators: NAVWEPS 00-80T-80. Skyhorse Publishing Company, Incorporated. ISBN 9781616084394

Recommended Resources

Anderson, J. D. (2005). Introduction to Flight. McGraw-Hill Higher Education. 9780072825695

Course Evaluation and Development

One of the key priorities in the 2025 Strategy for UNSW is a drive for academic excellence in education. One of the ways of determining how well UNSW is progressing towards this goal is by listening to our own students. Students will be asked to complete the myExperience survey towards the end of this course.

Students can also provide feedback during the semester via: direct contact with the lecturer, the “On-going Student Feedback” link in Moodle, Student-Staff Liaison Committee meetings in schools, informal feedback conducted by staff, and focus groups. Student opinions really do make a difference. Refer to the Moodle site for this course to see how the feedback from previous students has contributed to the course development.

Important note: Students are reminded that any feedback provided should be constructive and professional and that they are bound by the Student Code of Conduct Policy

<https://www.gs.unsw.edu.au/policy/documents/studentcodepolicy.pdf>

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Graham Wild		B26 Rm119	0251145221	By Appointment	No	Yes
Head demonstrator	Alexander Somerville		B21 Rm381 Desk11		By Appointment	No	No

Other Useful Information

Academic Information

Course Evaluation and Development

One of the key priorities in the 2025 Strategy for UNSW is a drive for academic excellence in education. One of the ways of determining how well UNSW is progressing towards this goal is by listening to our own students. Students will be asked to complete the myExperience survey towards the end of each course.

Students can also provide feedback during the semester via: direct contact with the lecturer, the “On-going Student Feedback” link in Moodle, Student-Staff Liaison Committee meetings in schools, informal feedback conducted by staff, and focus groups (where applicable). Student opinions really do make a difference. Refer to the Moodle site for your course to see how the feedback from previous students has contributed to the course development.

Important note: Students are reminded that any feedback provided should be constructive and professional and that they are bound by the Student Code of Conduct.

<https://www.gs.unsw.edu.au/policy/documents/studentcodepolicy.pdf>

Equitable Learning Services (ELS)

Students living with neurodivergent, physical and/or mental health conditions or caring for someone with these conditions may be eligible for support through the Equitable Learning Services team. Equitable Learning Services is a free and confidential service that provides practical support to ensure your mental or physical health conditions do not adversely affect your studies.

Our team of dedicated **Equitable Learning Facilitators (ELFs)** are here to assist you through this process. We offer a number of services to make your education at UNSW easier and more equitable.

Further information about ELS for currently enrolled students can be found at: <https://www.student.unsw.edu.au/equitable-learning>

Academic Honesty and Plagiarism

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW staff and students have a responsibility to adhere to this principle of academic integrity. All students are expected to adhere to UNSW’s Student Code of Conduct. Find relevant information at: [Student Code of Conduct \(unsw.edu.au\)](https://www.unsw.edu.au/student-code-of-conduct)

Plagiarism undermines academic integrity and is not tolerated at UNSW. It is defined as using the words or ideas of others and passing them off as your own, and can take many forms, from deliberate cheating to accidental copying from a source without acknowledgement.

For more information, please refer to the following:

Submission of Assessment Tasks

Special Consideration

Special Consideration is the process for assessing and addressing the impact on students of short-term events, that are beyond the control of the student, and that affect performance in a specific assessment task or tasks.

Applications for Special Consideration will be accepted in the following circumstances only:

- Where academic work has been hampered to a substantial degree by illness or other cause;
- The circumstances are unexpected and beyond the student's control;
- The circumstances could not have reasonably been anticipated, avoided or guarded against by the student; and either:
 - (i) they occurred during a critical study period and was 3 consecutive days or more duration, or a total of 5 days within the critical study period; or
 - (ii) they prevented the ability to complete, attend or submit an assessment task for a specific date (e.g. final exam, in class test/quiz, in class presentation)

Applications for Special Consideration must be made as soon as practicable after the problem occurs and at the latest within three working days of the assessment or the period covered by the supporting documentation.

By sitting or submitting the assessment task the student is declaring that they are fit to do so and cannot later apply for Special Consideration (UNSW 'fit to sit or submit' requirement).

Sitting, accessing or submitting an assessment task on the scheduled assessment date, after applying for special consideration, renders the special consideration application void.

Find more information about special consideration at: <https://www.student.unsw.edu.au/special/consideration/guide>

Or apply for special consideration through your [MyUNSW portal](#).

Late Submission of assessment tasks (other than examinations)

UNSW has a standard late submission penalty of:

- 5% per day,
- capped at five days (120 hours) from the assessment deadline, after which a student cannot submit an assessment, and
- no permitted variation.

Students are expected to manage their time to meet deadlines and to request extensions as early as possible before the deadline.

Electronic submission of assessment

Except where the nature of an assessment task precludes its electronic submission, all assessments must be submitted to an electronic repository, approved by UNSW or the Faculty, for archiving and subsequent marking and analysis.

Release of final mark

All marks obtained for assessment items during the session are provisional. The final mark as published by the university following the assessment review group meeting is the only official mark.