



## UNSW Course Outline

# AVIA2025 Introduction to Airborne Drone Management - 2024

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## General Course Information

**Course Code :** AVIA2025

**Year :** 2024

**Term :** Term 3

**Teaching Period :** T3

**Is a multi-term course? :** No

**Faculty :** Faculty of Science

**Academic Unit :** School of Aviation

**Delivery Mode :** Online

**Delivery Format :** Standard

**Delivery Location :** Kensington

**Campus :** Sydney

**Study Level :** Undergraduate

**Units of Credit :** 6

### Useful Links

[Handbook Class Timetable](#)

## Course Details & Outcomes

### Course Description

Airborne drones (unmanned aerial vehicles (or remotely piloted aircraft (RPA)) of varying shapes and sizes are permeating the civil aviation sector across recreational, commercial and research activities. This is due to their ability to perform certain processes for numerous industries such

as medicine, military, humanitarian aid, retail, and construction in safer and more efficient ways than crewed air flight. The professional ability to safely and efficiently operate and manage airborne drones requires fundamental aviation knowledge. This course will introduce these fundamentals of RPA management to students through a suite of topics including basic aeronautical knowledge, RPA ethics and law, human factors and safety, logistics and operations, and RPA research methods. The course will emphasise practical applications of the concepts and tools introduced through select case studies and realistic mission planning for operations involving commercial and research activities. The course is delivered fully online with asynchronous, interactive, self-paced content each week. In addition, course staff will be available online for an optional live drop-in tutorial class each week for students to ask questions and clarify understanding.

## Course Aims

The aim of this course is to introduce and develop aviation knowledge to help students become safe and effective users and managers of remotely piloted aircraft (RPA). The course aims to support students with developing the relevant aeronautical and risk management skills, learn the principles underpinning Civil Aviation Safety Authority's regulatory approach towards RPA, as well as to examine practical examples of commercial RPA operational planning and management. In addition, the course will be at a level to enable basic aeronautical knowledge accessible for General Education students, as well as to further build and reinforce the knowledge for aviation students wishing to broaden their career pathways or/and undertake further studies and research in this area.

## Course Learning Outcomes

Course Learning Outcomes
CLO1 : Explain the basic aeronautical principles relevant for remotely piloted aircraft systems (RPAS).
CLO2 : Describe the human factors principles relevant for safe and efficient remote piloting and remotely piloted aircraft systems.
CLO3 : Describe the legislative and regulatory framework guiding the governance of remotely piloted aircraft in Australia.
CLO4 : Appraise the operational feasibility of a given remotely piloted aircraft mission under varying circumstances.
CLO5 : Critique the advantages and limitations of remotely piloted aircraft for data collection and research in relation to other existing airborne methods.

Course Learning Outcomes	Assessment Item
CLO1 : Explain the basic aeronautical principles relevant for remotely piloted aircraft systems (RPAS).	<ul style="list-style-type: none"> <li>• Knowledge Test 1</li> <li>• Case study report</li> <li>• Final exam</li> </ul>
CLO2 : Describe the human factors principles relevant for safe and efficient remote piloting and remotely piloted aircraft systems.	<ul style="list-style-type: none"> <li>• Knowledge test 2</li> <li>• Final exam</li> </ul>
CLO3 : Describe the legislative and regulatory framework guiding the governance of remotely piloted aircraft in Australia.	<ul style="list-style-type: none"> <li>• Knowledge Test 1</li> <li>• Knowledge test 2</li> <li>• Case study report</li> <li>• Final exam</li> </ul>
CLO4 : Appraise the operational feasibility of a given remotely piloted aircraft mission under varying circumstances.	<ul style="list-style-type: none"> <li>• Case study report</li> </ul>
CLO5 : Critique the advantages and limitations of remotely piloted aircraft for data collection and research in relation to other existing airborne methods.	<ul style="list-style-type: none"> <li>• Final exam</li> </ul>

## Learning and Teaching Technologies

Moodle - Learning Management System

## Learning and Teaching in this course

This is a fully online asynchronous course with weekly self-paced modules. Several different methods are used in the course to assist in achieving student learning outcomes. Each unit will have allocated readings and review questions to assist students achieve learning and provide a logical structure for the topics and concepts introduced in the course. The group project is designed to provide a context in which students can apply learning to 'real world' problems and assist students appreciate, analyse and evaluate the complexity of problems, with the goal of promoting the values of teamwork and grow individual resilience in working in teams. The final exam will assess student level of understanding and knowledge through a mix of numerical, short-answers and miniessay-type questions.

# Assessments

## Assessment Structure

Assessment Item	Weight	Relevant Dates
Knowledge Test 1 Assessment Format: Individual	20%	Start Date: Week 4 Due Date: Week 4
Knowledge test 2 Assessment Format: Individual	20%	Start Date: Week 8 Due Date: Week 8, Times to be advised
Case study report Assessment Format: Group	30%	Start Date: Week 3 Due Date: Week 9
Final exam Assessment Format: Individual	30%	Start Date: Exam Period TBD Due Date: Exam Period TBD

## Assessment Details

### Knowledge Test 1

#### Assessment Overview

You are required to complete an online test that covers the main topics introduced in Units 1 to 4. The test is 1.5 hours in duration, will comprise of both multiple choice and short answer questions, and you will be able to complete this test within a 12-hour window on the day stipulated in Week 4. Information regarding assessment details will be released in Week 1. Marks and feedback will be released within 10 working days of the submission deadline.

#### Course Learning Outcomes

- CLO1 : Explain the basic aeronautical principles relevant for remotely piloted aircraft systems (RPAS).
- CLO3 : Describe the legislative and regulatory framework guiding the governance of remotely piloted aircraft in Australia.

#### Generative AI Permission Level

#### No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

## **Knowledge test 2**

### **Assessment Overview**

You are required to complete an online test that covers the main topics introduced in Units 5 to 8. The test is 1.5 hours in duration, will comprise of both multiple choice and short answer questions, and you will be able to complete this test within a 12-hour window on the day stipulated in Week 8. Information regarding assessment details will be released in Week 5. Marks and feedback will be released within 10 working days of the submission deadline.

### **Course Learning Outcomes**

- CLO2 : Describe the human factors principles relevant for safe and efficient remote piloting and remotely piloted aircraft systems.
- CLO3 : Describe the legislative and regulatory framework guiding the governance of remotely piloted aircraft in Australia.

### **Generative AI Permission Level**

#### **No Assistance**

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

## **Case study report**

### **Assessment Overview**

For this assessment, you will be required to work in a pre-allocated team to apply concepts learnt to plan and assess a realistic remotely piloted aircraft mission for commercial activity. The assignment requires you and your group to consult a mix of multimedia, industry, government, and academic sources, and produce a hypothetical remotely piloted aircraft systems work proposal.

The report instructions, along with grouping information, will be made available in Week 3.

As a hurdle task, the team contract must be submitted before the online meeting with course staff in Week 5.

The report is due in Week 9 and marks will be released within 10 working days after the submission deadline.

Your team's work will be judged on the comprehensiveness of the plan, gathering of correct information and accuracy in the use of the information.

### **Course Learning Outcomes**

- CLO1 : Explain the basic aeronautical principles relevant for remotely piloted aircraft systems (RPAS).
- CLO3 : Describe the legislative and regulatory framework guiding the governance of remotely piloted aircraft in Australia.
- CLO4 : Appraise the operational feasibility of a given remotely piloted aircraft mission under varying circumstances.

### **Generative AI Permission Level**

#### **Simple Editing Assistance**

In completing this assessment, you are permitted to use standard editing and referencing functions in the software you use to complete your assessment. These functions are described below. You must not use any functions that generate or paraphrase passages of text or other media, whether based on your own work or not.

If your Convenor has concerns that your submission contains passages of AI-generated text or media, you may be asked to account for your work. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.

For more information on Generative AI and permitted use please see [here](#).

### **Final exam**

#### **Assessment Overview**

You will be required to undertake a 2-hour examination covering all topics in the course. The examination will take place during the official UNSW examination period and include a combination of short essay and short answer questions. You will be encouraged to demonstrate your understanding of theoretical knowledge through the use of original examples. It is necessary to pass the final exam in order to pass the course.

Feedback is available through inquiry with the course convenor.

### **Course Learning Outcomes**

- CLO1 : Explain the basic aeronautical principles relevant for remotely piloted aircraft systems (RPAS).
- CLO2 : Describe the human factors principles relevant for safe and efficient remote piloting and remotely piloted aircraft systems.
- CLO3 : Describe the legislative and regulatory framework guiding the governance of remotely

piloted aircraft in Australia.

- CLO5 : Critique the advantages and limitations of remotely piloted aircraft for data collection and research in relation to other existing airborne methods.

#### **Generative AI Permission Level**

##### **No Assistance**

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

## **General Assessment Information**

Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or

research. Not referencing other people's work can constitute plagiarism.

Further information about referencing styles can be located at <https://student.unsw.edu.au/referencing>

Academic integrity is fundamental to success at university. Academic integrity can be defined as a

commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage.<sup>1</sup> At UNSW, this means that your work must be your own, and others' ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.

Further information about academic integrity and plagiarism can be located at:

- The Current Students site <https://student.unsw.edu.au/plagiarism>, and
- The ELISE training site <http://subjectguides.library.unsw.edu.au/elise/presenting>

The Conduct and Integrity Unit provides further resources to assist you to understand your

conduct

obligations as a student: <https://student.unsw.edu.au/conduct>.

#### Grading Basis

Standard

## Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 9 September - 15 September	Module	Topic: Introduction and Basic Aeronautical Management Knowledge (BAMK) I Activity: Basic drone propulsion, licensing
Week 2 : 16 September - 22 September	Module	Topic: Basic Aeronautical Management Knowledge (BAMK) II Activity: Airspace management, aeronautical charts
Week 3 : 23 September - 29 September	Module	Topic: Basic Aeronautical Management Knowledge (BAMK) III Activity : Basic meteorology
Week 4 : 30 September - 6 October	Module	Topic: Remotely Piloted Aircraft System (RPAS) Law and Ethics I Activity : Legislative framework
Week 5 : 7 October - 13 October	Module	Topic : Remotely Piloted Aircraft System (RPAS) Law and Ethics II Activity : Drones and Privacy
Week 6 : 14 October - 20 October	Online Activity	Flexibility Week Team project online meeting with Tay
Week 7 : 21 October - 27 October	Module	Topic: Human Factors and Safety Management in RPAS I Activity: Human errors in drone accidents
Week 8 : 28 October - 3 November	Module	Topic: Human Factors and Safety Management in RPAS II Activity: Controlling multiple drones and information processing demands
Week 9 : 4 November - 10 November	Module	Topic: RPAS Aerial Survey Activity: Aerial surveying and mapping
Week 10 : 11 November - 17 November	Module	Topic: RPAS and Logistics Activity: Travelling salesmen problem

## Attendance Requirements

Not Applicable - as no class attendance is required

## General Schedule Information

This course consists of 10 weeks of online module. Please note topics and activities are subject to minor changes.

## Course Resources

### Prescribed Resources

Essential readings will be provided via Moodle

Civil Aviation Safety Authority [www.casa.gov.au](http://www.casa.gov.au)

## Recommended Resources

- The Current Students Gateway: <https://student.unsw.edu.au/>
- Academic Skills and Support: <https://student.unsw.edu.au/academic-skills>
- Student Wellbeing, Health and Safety: <https://student.unsw.edu.au/wellbeing>
- Disability Support Services: <https://student.unsw.edu.au/disability-services>
- UNSW IT Service Centre: <https://www.it.unsw.edu.au/students/index.html>

## Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Lecturer	Tay Koo		Kensington campus		By arrangement	No	Yes

## Other Useful Information

### Academic Information

Upon your enrolment at UNSW, you share responsibility with us for maintaining a safe, harmonious and tolerant University environment.

You are required to:

- Comply with the University's conditions of enrolment.
- Act responsibly, ethically, safely and with integrity.
- Observe standards of equity and respect in dealing with every member of the UNSW community.
- Engage in lawful behaviour.
- Use and care for University resources in a responsible and appropriate manner.
- Maintain the University's reputation and good standing.

For more information, visit the [UNSW Student Code of Conduct Website](#).

### Academic Honesty and Plagiarism

**Referencing** is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words,

ideas or research. Not referencing other people's work can constitute plagiarism.

Further information about referencing styles can be located at <https://student.unsw.edu.au/referencing>

**Academic integrity** is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage. At UNSW, this means that your work must be your own, and others' ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.

Further information about academic integrity, plagiarism and the use of AI in assessments can be located at:

- The [Current Students site](#),
- The [ELISE training site](#), and
- The [Use of AI for assessments](#) site.

The Student Conduct and Integrity Unit provides further resources to assist you to understand your conduct obligations as a student: <https://student.unsw.edu.au/conduct>

## Submission of Assessment Tasks

### Penalty for Late Submissions

UNSW has a standard late submission penalty of:

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

*Any variations to the above will be explicitly stated in the Course Outline for a given course or assessment task.*

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

### Special Consideration

If circumstances prevent you from attending/completing an assessment task, you must officially apply for special consideration, usually within 3 days of the sitting date/due date. You can apply by logging onto myUNSW and following the link in the My Student Profile Tab. Medical

documentation or other documentation explaining your absence must be submitted with your application. Once your application has been assessed, you will be contacted via your student email address to be advised of the official outcome and any actions that need to be taken from there. For more information about special consideration, please visit: <https://student.unsw.edu.au/special-consideration>

**Important note:** UNSW has a “fit to sit/submit” rule, which means that if you sit an exam or submit a piece of assessment, you are declaring yourself fit to do so and cannot later apply for Special Consideration. This is to ensure that if you feel unwell or are faced with significant circumstances beyond your control that affect your ability to study, you do not sit an examination or submit an assessment that does not reflect your best performance. Instead, you should apply for Special Consideration as soon as you realise you are not well enough or are otherwise unable to sit or submit an assessment.

## Faculty-specific Information

### Additional support for students

- [The Current Students Gateway](#)
- [Student Support](#)
- [Academic Skills and Support](#)
- [Student Wellbeing, Health and Safety](#)
- [Equitable Learning Services](#)
- [UNSW IT Service Centre](#)
- Science EDI Student [Initiatives](#), [Offerings](#) and [Guidelines](#)

### School Contact Information

#### Email:

aviation@unsw.edu.au

#### Telephone:

Undergraduate Courses - +61 2 9385 5756 (Katie Wang)

Postgraduate Courses - +61 2 9385 5787 (Michelle Lee)