UNSW Course Outline

AVIA5015 Safety Management Systems - 2024

Published on the 05 Feb 2024

General Course Information

Course Code : AVIA5015
Year : 2024
Term : Term 1
Teaching Period : T1
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 : Postgraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

The global civil aviation system is categorised as an 'ultra-safe' transport system, where since 2017 the annual global air transport accident rate has averaged 2.4 accidents per million departures. The aviation industry has achieved its high levels of safety performance through a

lengthy, extensive, highly regulated and crisis-ridden optimisation process, largely due to the lessons learned from incidents and accidents. Although low accident rates are a commonly used measurement of safety performance, a deficiency with this type of indicator is that over 90% of latent conditions and potential precursors to an accident are not evident or reflected in these statistics. Importantly, the absence of accidents does not provide an accurate indication of how safe a system is. Furthermore, as the air transport industry is increasingly exposed to unpredictable events really encountered before, such as risks associated with extreme weather, cyber-threats, regional conflict and the emergence of new aviation business models such as remotely piloted aircraft systems and urban air mobility. Now, more than ever, proactive and predictive safety management plays an essential role in reducing the vulnerability of the aviation system to not only existing threats, but to emerging and unpredictable hazards and risks.

Safety Management Systems (SMS) provide a systematic and structured approach to managing aviation safety risk. SMS is designed to monitor and continuously improve safety performance by utilising both proactive and reactive measures through hazard identification, hazard and error reporting, analysis of safety data and information, investigation, and the continuous monitoring and assessment of safety risks. The objective of SMS is to proactively mitigate safety risks before they result in accidents and incidents.

Through a combination of readings, case-based learning, and assessments, this course will introduce students to theoretical and practical perspectives of SMS in an aviation context. This includes the concept of 'safety', accident/incident causation models, SMS components, and safety culture. Students will have the opportunity to test their knowledge development and skills throughout the course and develop skills transferable to their own careers in aviation, and other high-reliability industries.

This fully online course is intended for professional flight crew, aviation managers, researchers, regulatory authority personnel, and persons who would benefit from a more complete knowledge of safety management.

Course Aims

The aim of this course is to provide students with an understanding of the principles of aviation safety management systems (SMS) and the importance of SMS to support Australian and global aviation safety. The knowledge developed by successful completion of the course can be used by persons working or seeking to work in aviation and other high-reliability industries to better

understand the often complex interaction between individuals and organisations, and their effect on safety.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Summarise the principles of system safety including a recognition of the benefits of adopting a Safety Management System and learning how to utilise such a system within the legislative framework.
CLO2 : Critique the importance of establishing a positive organisational safety culture, how such a culture can be developed and maintained, and understanding the need for the commitment of senior management to safety.
CLO3 : Critically assess the principles of investigating reported safety occurrences and hazards, how to utilise systems-based processes to identify safety deficiencies, and what safety actions can be taken to counteract those deficiencies.
CLO4 : Describe and apply the principles of identifying, evaluating and managing risk in a variety of aviation scenarios.
CLO5 : Appraise and describe hazard identification procedures, assessment of risk in terms of probability and severity of consequences, and the application of controls to manage risk.
CLO6 : Recall and apply safety assurance processes including safety system auditing and safety performance processes to manage continuous improvement and effectiveness of the safety management system.

Course Learning Outcomes	Assessment Item
CLO1 : Summarise the principles of system safety including a recognition of the benefits of adopting a Safety Management System and learning how to utilise such a system within the legislative framework.	• Assignment 1
CLO2 : Critique the importance of establishing a positive organisational safety culture, how such a culture can be developed and maintained, and understanding the need for the commitment of senior management to safety.	• Assignment 1
CLO3 : Critically assess the principles of investigating reported safety occurrences and hazards, how to utilise systems-based processes to identify safety deficiencies, and what safety actions can be taken to counteract those deficiencies.	• Assignment 2 • Assignment 1
CLO4 : Describe and apply the principles of identifying, evaluating and managing risk in a variety of aviation scenarios.	• Assignment 2
CLO5 : Appraise and describe hazard identification procedures, assessment of risk in terms of probability and severity of consequences, and the application of controls to manage risk.	• Assignment 2
CLO6 : Recall and apply safety assurance processes including safety system auditing and safety performance processes to manage continuous improvement and effectiveness of the safety management system.	• Assignment 2

Learning and Teaching Technologies

Moodle - Learning Management System

Learning and Teaching in this course

Weekly course structure:

Each week is structured in a linear way to support your learning and follows a consistent format comprised of a weekly checklist, introductory video to the weekly material (in the form of a 'Unit'), weekly readings (housed in a centralised online reading list), "knowledge check" formative assessment, and reflect and review.

It is expected that you engage with all of the material in a sequenced way to maximise your learning and consolidation of material, and complete each Unit by the end of the respective week.

Assessments are designed in alignment with the course content, and are an opportunity for you to identify strength areas and areas for improvement.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Assignment 1 Assessment Format: Individual	40%	Start Date: Week 3 : 26/02/2024 Due Date: Week 7 : 29/03/2024 11:59PM
Assignment 2 Assessment Format: Individual	60%	Start Date: Week 8 : 01/04/2024 Due Date: 03/05/2024 11:59PM

Assessment Details

Assignment 1

Assessment Overview

For Assignment 1, you will be provided with a question to answer relating to material covered in Weeks 1 to 5 (inclusive). You will be required to submit your response to the question in essay format using no more than 2000 words.

Details of Assignment 1 will be released in Week 3. The assignment is to be submitted in Week 7

of the course.

For your assignment submission, you will be marked on your ability to:

• demonstrate your understanding of the concepts, theories and ideas developed in the course;
apply those concepts to situations from your own experience;
capability to structure an assignment logically and limit it to the length required;
address the specified or
negotiated assignment requirements in your work; and
appropriately use grammar, spelling, style, and academic referencing, together with an appropriate mix of research and original thought.

• convey your own ideas in an interesting, innovative way and in your own words, rather than as a 'model answer' derived from the text or comprised mainly of quoted reference text.

Marks and detailed feedback will be provided to you within 10 working days following submission.

Course Learning Outcomes

- CLO1 : Summarise the principles of system safety including a recognition of the benefits of adopting a Safety Management System and learning how to utilise such a system within the legislative framework.
- CLO2 : Critique the importance of establishing a positive organisational safety culture, how such a culture can be developed and maintained, and understanding the need for the commitment of senior management to safety.
- CLO3 : Critically assess the principles of investigating reported safety occurrences and hazards, how to utilise systems-based processes to identify safety deficiencies, and what safety actions can be taken to counteract those deficiencies.

Assessment Length

2,000 words

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

Assignment 2

Assessment Overview

For Assignment 2, you will be required to provide answers to a combination of short answer and essay questions in no more than 2,000 words. The assessment covers all material taught throughout the term. Details of the assignment will be released in Week 8 of the course. You will

be required to submit Assignment 2 in the first week of the official UNSW examination period .

You will be assessed against criteria including how thoughtful, interesting and innovative the responses are.

The purpose of the two parts of this assignment is to test your:
1. knowledge and understanding of the course material,
2. ability to apply that understanding, and
3. ability to critically assess current accident investigation processes and suggest how these processes might be developed and/or improved.

For your assignment submission, you will be marked on your ability to:
• demonstrate your understanding of the concepts, theories and ideas developed in the course; apply those concepts to situations from your own experience;
capability to structure an assignment logically and limit it to the length required;
address the specified or
negotiated assignment requirements in your work; and
appropriately use grammar, spelling, style, and academic referencing, together with an appropriate mix of research and original thought.
• convey your own ideas in an interesting, innovative way and in your own words, rather than as a 'model answer' derived from the text or comprised mainly of quoted reference text.

Feedback will be provided to you within 10 working days following submission.

Course Learning Outcomes

- CLO3 : Critically assess the principles of investigating reported safety occurrences and hazards, how to utilise systems-based processes to identify safety deficiencies, and what safety actions can be taken to counteract those deficiencies.
- CLO4 : Describe and apply the principles of identifying, evaluating and managing risk in a variety of aviation scenarios.
- CLO5 : Appraise and describe hazard identification procedures, assessment of risk in terms of probability and severity of consequences, and the application of controls to manage risk.
- CLO6 : Recall and apply safety assurance processes including safety system auditing and safety performance processes to manage continuous improvement and effectiveness of the safety management system.

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

General Assessment Information

UNSW Aviation's decision for Short Extension Policy

The School of Aviation has carefully reviewed its range of assignments and projects to determine their suitability for automatic short extensions as set out by the UNSW Short Extension Policy. After careful consideration of our course offerings and our current structure, we have determined that our current deadline structures already accommodate the possibility of unexpected circumstances that may lead students to require additional days for submission. **Consequently, the School of Aviation has decided to not adopt the Short Extension provision for all its courses and has reassured that flexibility is integrated into our assessment deadlines.** The decision is subject to revision in response to the introduction of new course offerings. Students may still apply for Special Consideration via the usual procedures.

~~~~~~

Formative assessments:

You will be provided with an opportunity to test your understanding of material covered early in the AVIA5015 course through the completion of a formative quiz. The quiz comprises of multiple-choice questions on material covered in Weeks 1 to 3 (inclusive) of the course. It is to be completed by the start of Week 4.

Feedback will be provided immediately upon completion of the quiz, allowing you to self-assess your understanding and areas for improvement in the course.

You will also be provided with opportunities to test your knowledge weekly through a "Knowledge Check" formative assessment, as well as a Reflect and Review activity that allows you to self-assess your confidence in key areas of learning.

It is expected that you engage with all of the material in a sequenced way to maximise your learning and consolidation of material, and complete each Unit by the end of the respective week.

Summative assessments:

Assessments are designed in alignment with the course content, and are an opportunity for you to identify strength areas and areas for improvement.
~~~~~~

Unless otherwise specified, the following criteria will be applied in assessing your written work:

- evidence of understanding of the concepts, theories and ideas developed in the course;
- ability to apply those concepts to situations from your own experience;
- capability to structure an assignment logically and limit it to the length required;
- the degree to which the material submitted for assessment addresses the specified or negotiated assignment requirements; and
- the proper use of grammar, spelling, style, and academic referencing, together with an appropriate mix of research and original thought.

The examiner is looking for interesting and innovative answers and not a 'model answer' derived from the text. Answers that consist of a succession of "quotes" will not attract high marks.

Students are referred to the University's rules on academic conduct, which are contained within the Student Handbook. Specifically, **plagiarism** is absolutely unacceptable and may lead to failure of the course, or in extreme cases exclusion from the University. Students are referred to the University's Student Handbook for full details on academic regulations.

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 12 February - 18 February	Topic	Unit 1: Introduction to Safety Management
Week 2 : 19 February - 25 February	Topic	Unit 2: Incident/Accident Causation Models
Week 3 : 26 February - 3 March	Topic	Unit 3: Regulatory Framework
Week 4 : 4 March - 10 March	Topic	Unit 4: Elements of a Safety Management System
Week 5 : 11 March - 17 March	Topic	Unit 5: Safety Policy and Objectives
Week 6 : 18 March - 24 March	Topic	Unit 6: Safety Risk Management
Week 7 : 25 March - 31 March	Topic	Unit 7: Safety Assurance
Week 8 : 1 April - 7 April	Topic	Unit 8: Safety Training and Promotion
Week 9 : 8 April - 14 April	Topic	Unit 9: Safety Culture
Week 10 : 15 April - 21 April	Topic	Unit 10: Emergency Response Planning

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

General Schedule Information

UNSW Aviation's decision to not release Lecture Recordings:

The School of Aviation prides itself on offering education that supports students in their personalised learning journey. This involves providing opportunities for students to engage with academics and key aviation experts to identify and address learning gaps, develop core skills and knowledge, and foster an environment of collaboration and meaningful discussion with the UNSW Aviation community. To support this vision, UNSW Aviation has decided to require students to attend all synchronous lectures (in-person or online) and not release class recordings to the student cohort. If students cannot attend a class and require learning support due to unforeseen circumstances, they should contact their Course Coordinator or Program Coordinator to discuss options for support and making up for missed class time.

~~~~~~

The course structure comprises of one Unit for each week. Students are strongly encouraged to allocate time each week to ensure all Unit activties are completed, including planning and writing of assignment tasks.

Course Resources

Recommended Resources

Reading activities are mentioned throughout the course content (located in the weekly Course Units) and the respective readings can be found in the reading list located in the AVIA5022 Moodle course site. All readings are available online to support a distance-learning format.

The readings are either "mandatory/required" or "optional/recommended", and are labelled accordingly in the reading list.

Historical but highly relevant additional material is also available in the reading list. These resources are included for students who may wish to use additional texts to further their personal interest in this subject area.

Mandatory/Required Readings & Reference Material

- **Mandatory/Required Readings** - are provided with each unit. As the title implies, they are **essential** for your understanding of the course material and must be read. Sometimes these readings are referred to within the text and should be read before proceeding. In some units the readings should be read after completing the unit reading. This will be made clear to you in the text of each unit.
~~~~~~

Unit topic video clips

Each unit contains a video clip providing key information related to the unit topic and guidance on the mandatory and non-essential reading activities. The unit topic video clips are essential to watch as they also contain key information that is related to the two assignment tasks associated with the course.

- **Optional/Recommended Material** - refers to material that is **secondary** to the Essential Readings. This material could be provided solely for your further reading, or it may be referred to in the text or Reflect and Review section. Examples include legislation, and ATSB accident reports and articles. As the title suggests, you should refer to this material as necessary, however unlike the Essential Readings it may not be necessary to read the entire document, e.g. Air Navigation Act 1920 (as amended).
- **Historical Material** – like the study of the Law, air safety investigation has its roots in processes and procedures that go back many years. Although every attempt has been made to provide recent examples of the principles being discussed, sometimes older/original examples are preferred.

Course Evaluation and Development

UNSW Aviation highly value student feedback as a way to constantly improve course offerings, teaching excellence and the student experience. In AVIA5015, students are provided with opportunities, both informal feedback, via direct correspondence with the course convenor, forums, and survey questions in the Reflect and Review activities; and formal feedback, via myExperience Surveys. The availability of this feedback creates a culture of continuous improvement by identifying, responding to, and acting on student feedback.

The course survey will open towards the end of Term. Students are encouraged to participate in the survey via Moodle, myUNSW, or through the direct myExperience link.

Please provide constructive feedback and focus on your learning experience in relation to the course material. While the survey is confidential, it is not anonymous. Comments that breach the Student Code of Conduct, that are hurtful, racist, sexist or ill-natured, may lead to disciplinary action.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Kevin McMurtrie				via email and/or Moodle forums	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 Plagarism

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)