UNSW Course Outline

ZEIT3801 Advanced Aviation Safety - 2024

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General Course Information

Course Code : ZEIT3801
Year : 2024
Term : Semester 2
Teaching Period : Z2
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 6UOC course aims to help students to develop an understanding of safety concepts and safety management systems. This includes the role of proactive safety systems, developing a 'just & fair' safety culture, non-punitive confidential reporting systems, attitude and operational

surveys, training, creating a feedback loop, behavioural assessment, and safety program audits. Aircraft operator accident prevention strategy initiatives will be covered along with operational data base analysis and safety program evaluation methodology. Crew Resource Management and Aviation Risk Management topics will be delivered. Aviation and other high-risk, high-reliability industry case studies will be used to illustrate organisational safety concepts.

A number of aircraft incidents and accidents will be analysed to illustrate key concepts in flight safety. Defence and industry practitioners may deliver guest lectures in order to emphasize the applied aspects of the theory discussed, and local field trips to aviation safety related civil and military organisations are planned.

Course Aims

The success of safe operations within aviation depends on individual performance of a specific role, as well as interaction with others.

The aim of this course is to expand knowledge in aviation safety, safety management systems, and resource management. The focus of this course is on interaction of people in teams/ groups, and how this interaction affects performance of the systems, and the relative success if the operations.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Explain fundamental aviation safety concepts, accident statistics, and the key elements of safety management systems in both civil and military environment.
CLO2 : Identify hazards and develop strategies to manage the risks they pose to an aviation operation.
CLO3 : Examine how group, team and organisational factors affect an individual and organisational performance and safety in aviation context.
CLO4 : Apply a systems approach and accident models of causation when conducting an aircraft accident investigation.
CLO5 : Critically evaluate contemporary issues of aviation safety and formulate effective countermeasures to address these issues.

Course Learning Outcomes	Assessment Item
CLO1 : Explain fundamental aviation safety concepts, accident statistics, and the key elements of safety management systems in both civil and military environment.	• Essay • Quizzes • Laboratory Report • Final Exam
CLO2 : Identify hazards and develop strategies to manage the risks they pose to an aviation operation.	• Essay • Quizzes • Laboratory Report • Final Exam
CLO3 : Examine how group, team and organisational factors affect an individual and organisational performance and safety in aviation context.	• Essay • Quizzes • Laboratory Report • Final Exam
CLO4 : Apply a systems approach and accident models of causation when conducting an aircraft accident investigation.	• Essay • Quizzes • Final Exam
CLO5 : Critically evaluate contemporary issues of aviation safety and formulate effective countermeasures to address these issues.	• Quizzes • Final Exam

Learning and Teaching Technologies

Moodle - Learning Management System

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Essay Assessment Format: Individual	25%	Start Date: 26/07/2024 02:00 PM Due Date: 15/08/2024 11:55 PM Post Date: 29/08/2024 06:00 PM
Quizzes Assessment Format: Individual	20%	
Laboratory Report Assessment Format: Individual	15%	Start Date: 13/09/2024 02:00 PM Due Date: 18/10/2024 11:55 PM Post Date: 31/10/2024 06:00 PM
Final Exam Assessment Format: Individual	40%	Start Date: TBA Due Date: TBA

Assessment Details

Essay

Course Learning Outcomes

- CLO1 : Explain fundamental aviation safety concepts, accident statistics, and the key elements of safety management systems in both civil and military environment.
- CLO2 : Identify hazards and develop strategies to manage the risks they pose to an aviation operation.
- CLO3 : Examine how group, team and organisational factors affect an individual and organisational performance and safety in aviation context.
- CLO4 : Apply a systems approach and accident models of causation when conducting an aircraft accident investigation.

Detailed Assessment Description

Detailed assessment description is provided in the Course Assessmet Guide.

Assessment information

Requirements rearding Use of Generative Artificial Intelligence (AI) - NO ASSISTANCE.

It is prohibited to use any software or service to search for or generate information or answers. If its use is detected, it will be regarded as serious academic misconduct and subject to the standard penalties, which may include 00FL, suspension and exclusion.

Assignment submission Turnitin type

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

Quizzes

Course Learning Outcomes

- CLO1 : Explain fundamental aviation safety concepts, accident statistics, and the key elements of safety management systems in both civil and military environment.
- CLO2 : Identify hazards and develop strategies to manage the risks they pose to an aviation operation.
- CLO3 : Examine how group, team and organisational factors affect an individual and organisational performance and safety in aviation context.
- CLO4 : Apply a systems approach and accident models of causation when conducting an aircraft accident investigation.
- CLO5 : Critically evaluate contemporary issues of aviation safety and formulate effective countermeasures to address these issues.

Detailed Assessment Description

Detailed description of this assessment is proivded in the Course Assessment Gudie, available on Moodle.

Assessment information

Requirements rearding Use of Generative Artificial Intelligence (AI) - NO ASSISTANCE.

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Assignment submission Turnitin type

This is not a Turnitin assignment

Laboratory Report

Course Learning Outcomes

- CLO1 : Explain fundamental aviation safety concepts, accident statistics, and the key elements of safety management systems in both civil and military environment.
- CLO2 : Identify hazards and develop strategies to manage the risks they pose to an aviation operation.
- CLO3 : Examine how group, team and organisational factors affect an individual and organisational performance and safety in aviation context.

Detailed Assessment Description

Detailed assessment description is provided in the Course Assessment Guide, available on Moodle

Assessment information

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Assignment submission Turnitin type

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Final Exam

Course Learning Outcomes

- CLO1 : Explain fundamental aviation safety concepts, accident statistics, and the key elements of safety management systems in both civil and military environment.
- CLO2 : Identify hazards and develop strategies to manage the risks they pose to an aviation operation.
- CLO3 : Examine how group, team and organisational factors affect an individual and organisational performance and safety in aviation context.
- CLO4 : Apply a systems approach and accident models of causation when conducting an aircraft accident investigation.
- CLO5 : Critically evaluate contemporary issues of aviation safety and formulate effective countermeasures to address these issues.

Assessment information

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Assignment submission Turnitin type

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

General Assessment Information

You should achieve the learning outcomes of this course through completion of the assessments.

Essay will provide the opportunity for you to further explore an aviation safety topic, and to develop your critical thinking and individual writing skills.

Quizzes will allow you revising the content of lectures/tutorials and summarise your knowledge of the course modules, case studies and ability to distinguish the components that make up an aviation system.

Lab report will provide you with an opportunity to prepare an individual summary of a group work in the Aviation simulation laboratory. This report will include a summary of results of your work and reflection on the task as required for the laboratory work.

Final **exam** will allow you to review and reflect on the course content, demonstrating your understanding of fundamental aviation safety and safety management systems, as well as crew resource management concepts, accident statistics in both, civil and military environments.

Grading Basis

Standard

Requirements to pass course

The following compulsory components are required as minimum performance standards:
1. The overall pass mark is 50%.
2. Students must submit all assignments in due time (unless a request for special considerations is provided in accordance with the University's standard guidelines).

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 15 July - 19 July	Lecture	Welcome Lecture; Lecture 1. Introduction to Safety Management Systems; Safety Culture.
Week 2 : 22 July - 26 July	Lecture	Lecture 2. Safety Assurance (auditing & monitoring).
	Lecture	Guest Lecture. Academic Writing: Argument, Synthesis & Feedback; Assessment 1 – Q&A.
	Assessment	Quiz 1. Introduction to Safety Management Systems; Safety Culture.
	Tutorial	Tutorial 1. Introduction to SMS. Safety Culture
Week 3 : 29 July - 2 August	Lecture	Lecture 3. Aviation Risk Management.
	Assessment	Quiz 2. Aviation Risk Management.
	Tutorial	Tutorial 2. Aviation Risk Management.
Week 4 : 5 August - 9 August	Lecture	Lecture 4. Crew Resource Management.
	Assessment	Quiz 3. Crew Resource Management.
	Tutorial	Tutorial 3. Crew Resource Management.
Week 5 : 12 August - 16 August	Lecture	Guest Lecture. Implementing Crew Resource Management in Aviation.
	Assessment	Assessment 1 is due on August 15, 23:55.
	Lecture	Lecture 5. Group Decision Making and Social Influence.
Week 6 : 19 August - 23 August	Lecture	Lecture 6. Teamwork & Communication, Leadership.
	Assessment	Quiz 4. Group Decision-Making and Social Influence.
	Fieldwork	Field Trip - Group Activity.
Week 7 : 9 September - 13 September	Laboratory	Laboratory Session 1
Week 8 : 16 September - 20 September	Laboratory	Laboratory Session 2.
	Assessment	Quiz 5. Teamwork & Communication, Leadership.
Week 9 : 23 September - 27 September	Laboratory	Laboratory Session 3. Laboratory Session 4.
Week 10 : 30 September - 4 October	Laboratory	Laboratory Session 5
Week 11 : 7 October - 11 October	Laboratory	Laboratory Session is lost in Week 11.
Week 12 : 14 October - 18 October	Fieldwork	Field Trip to the 2024 Safeskies conference.
	Laboratory	Laboratory Session 6.
	Assessment	Assessment 3 is due on October 18, 23:55.
Week 13 : 21 October - 25 October	Lecture	Course Review & Exam Preparation, Q&A.

Attendance Requirements

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

General Schedule Information

This course aims to provide a learning and teaching environment, where all students are actively engaged in learning process via interesting, challenging, and enjoyable activities. The course has four main components: lectures, tutorials, laboratory sessions and field trips. These components should be seen as interactive and engaging, providing opportunities to ask questions and discuss aspects of the course content.

The course schedule is scheduled as follows:
Lectures - Thu 1000-1200, SR06 (Z-30-LT04).
Tutorials - Fri 1200-1400, LTN 12 (Z-30-LT4). Note: Tutorials will start from WK2.
Laboratory sessions - Fri 1200-1400, Z-17-G20 (Aviation Studio). Note: Labs will be conducted between WK7 and WK12.

Course Resources

Prescribed Resources

Resources for Students:

Compulsory Texts

- Stolzer, A. J., Sumwalt, R.L., & Goglia, J.J. (2023). Safety Management Systems in Aviation. CRC Press.
- Kanki, B.G., Anca, J., & Chidester, T.R. (2019). Crew Resource Management. Academic Press.

Recommended Resources

Recommended Readings

- Reason, J. (1997). Managing the risks of organisational accidents. Aldershot, UK: Ashgate.
- Cusick, S., Cortes, A., & Rodrigues, C. (2017). Commercial Aviation Safety, Sixth Edition. McGraw-Hill Education: New York
- MacLeod, N. (2021). Crew Resource Management Training: A Competence-based Approach for Airline Pilots. CRC Press.

Essential readings will be provided via Moodle. Additional references will be provided via Moodle and lecture notes.

Course Evaluation and Development

Overall, this course has great feedback, and high level of students satisfaction from various activities, variety of learning resourcs, and learning and teahcing styles, filed trips and guest speakers throughout the course.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Oleksandra Molloy		B26 R116	0251145184	I am usually available for consultations during normal working hours. Please email me to arrange a meeting.	No	Yes
Lab staff	Alexander Somerville		B16 G20		Available for Q&A during the lab sessions	No	No