UNSW Course Outline

ZEIT8506 Weapons Engineering - 2024

Published on the 30 Jun 2024

General Course Information

Course Code : ZEIT8506
Year : 2024
Term : Semester 2
Teaching Period : Z2
Is a multi-term course? : No
Faculty : UNSW Canberra
Academic Unit : School of Systems and Computing
Delivery Mode : Online
Delivery Format : Standard
Delivery Location : UNSW Canberra at ADFA
Campus : UNSW Canberra
Study Level : Postgraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

Explosives. Effect of blast, fragmentation and shaped charge warheads. Kinetic energy penetrators. Propellant charges. Fuses, initiators, detonators and safe/arm devices. Dynamics of unguided weapons: fin and spin stabilisation. Missile guidance techniques. Physics and

accuracy of missile sensors, and effect on guidance. Advanced guidance and sensor systems. Prediction techniques for missile aerodynamics. Propulsion, Storage, maintenance, transport and launch considerations.

Course Aims

This course is designed principally to give you the background required to work with weapon systems.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Demonstrate an understanding of the fundamental technologies employed in guided weapons
CLO2 : Explain the principles of operation of contemporary guided weapons
CLO3 : Identify the major design, operational and platform integration considerations for guided weapons
CLO4 : Apply the fundamentals of systems engineering to the analysis of guided weapon design

Course Learning Outcomes	Assessment Item
CLO1 : Demonstrate an understanding of the fundamental technologies employed in guided weapons	• Class Test Two - 30 minute open book • Assignment 1 • Class Test One - 30 Minutes book • Assignment 2
CLO2 : Explain the principles of operation of contemporary guided weapons	• Class Test Two - 30 minute open book • Assignment 1 • Class Test One - 30 Minutes book • Assignment 2
CLO3 : Identify the major design, operational and platform integration considerations for guided weapons	• Class Test Two - 30 minute open book • Assignment 1 • Class Test One - 30 Minutes book • Assignment 2
CLO4 : Apply the fundamentals of systems engineering to the analysis of guided weapon design	• Assignment 1 • Assignment 2

Learning and Teaching Technologies

Moodle - Learning Management System | Blackboard Collaborate

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Class Test Two - 30 minute open book Assessment Format: Individual Short Extension: Yes (3 days)	10%	Due Date: 22/09/2024 11:59 PM
Assignment 1 Assessment Format: Individual Short Extension: Yes (3 days)	40%	Due Date: 01/09/2024 11:59 PM
Class Test One - 30 Minutes book Assessment Format: Individual Short Extension: Yes (3 days)	10%	Due Date: 09/08/2024 11:59 PM
Assignment 2 Assessment Format: Individual Short Extension: Yes (3 days)	40%	Due Date: 27/10/2024 11:59 PM

Assessment Details

Class Test Two - 30 minute open book

Assessment Overview

30 minute, open-book class test will be conducted as scheduled in the course outline. Nonprogrammable calculators (eg FX-82) will be allowed. Class test questions are predominately drawn from the study guide revision question.

Course Learning Outcomes

- CLO1 : Demonstrate an understanding of the fundamental technologies employed in guided weapons
- CLO2 : Explain the principles of operation of contemporary guided weapons
- CLO3 : Identify the major design, operational and platform integration considerations for guided weapons

Assignment 1

Assessment Overview

Integration and Airframe Analysis. A 3000 word unclassified paper examining weapon airframe and platform integration requirements of a nominated system. The assignment must compare the benefits and costs of each nominated system solution in detail that shows off the knowledge learned or refined in this course.

Course Learning Outcomes

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weapons
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Class Test One - 30 Minutes book

Assessment Overview

30 minute, open-book class test will be conducted as scheduled in the course outline. Nonprogrammable calculators (eg FX-82) will be allowed. Class test questions are predominately drawn from the study guide revision question.

Course Learning Outcomes

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Assignment 2

Assessment Overview

Sensors and Guidance Analysis. The response shall describe the sensors and guidance technique of selected weapon systems in broad terms, and then you must home in on one particular system area, such as target detection and tracking, countermeasure resistance or guidance technique (eg COLOS) for discussion in greater depth. The aswer shall compare the benefits and costs of each proposed system solution in detail that shows off the knowledge learned or refined in this course.

Course Learning Outcomes

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General Assessment Information

Use of Generative AI in Assessments

As this assessment task involves some planning or creative processes, you are permitted to use software to generate initial ideas. However, you must develop or edit those ideas to such a significant extent that what is submitted is your own work, i.e., only occasional AI-generated words or phrases may form part of your final submission. It is a good idea to keep copies of the initial prompts to show your lecturer if there is any uncertainty about the originality of your work.

If the outputs of generative AI, such as ChatGPT form a part of your submission, 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, or properly referenced. Before submission, you should ensure that you have moderated and critically evaluated the outputs from generative AI tools such as ChatGPT.

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 15 July - 19 July	Lecture	
Week 2 : 22 July - 26 July	Lecture	
Week 3 : 29 July - 2 August	Lecture	
Week 4 : 5 August - 9 August	Lecture	
	Assessment	
Week 5 : 12 August - 16 August	Lecture	
Week 6 : 19 August - 23 August	Lecture	
Week 7 : 9 September - 13 September	Lecture	
	Assessment	
Week 8 : 16 September - 20 September	Lecture	
Week 9 : 23 September - 27 September	Lecture	
Week 10 : 30 September - 4 October	Lecture	
	Assessment	
Week 11 : 7 October - 11 October	Lecture	
Week 12 : 14 October - 18 October	Lecture	
Week 13 : 21 October - 25 October	Assessment	
	Lecture	

Attendance Requirements

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

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	HUADONG MO		R118, Building 20	0251145183	Huadong is usually available by email and during online consultation times via the Moodle Collaborate platform. I also welcome face-to-face discussion in my office during working hours by email appointment.	No	Yes
Lecturer	Ian Pemberton					No	No

Other Useful Information

School-specific Information

The Leaning Management System

Moodle is the Learning Management System used at UNSW Canberra. All courses have a Moodle site which will become available to students at least one week before the start of semester. Please find all help and documentation (including Blackboard Collaborate) at the Moodle Support page.

UNSW Moodle supports the following web browsers:
• Google Chrome 50+
• Safari 10+
Internet Explorer is not recommended. Addons and Toolbars can affect any browser's performance.

Operating systems recommended are:
• Windows 10,
• Mac OSX Sierra,
• iPad IOS10

Further details:
Moodle System Requirements
Moodle Log In

If you need further assistance with Moodle:

For enrolment and login issues please contact:

IT Service Centre

Email: itservicecentre@unsw.edu.au

Phone: (02) 9385-1333

International: +61 2 9385 1333

For all other Moodle issues please contact:

External TELT Support

Email: externalteltsupport@unsw.edu.au

Phone: (02) 9385-3331

International: +61 2 938 53331

Opening hours:

Monday – Friday 7:30am – 9:30 pm

Saturday & Sunday 8:30 am – 4:30pm

Study at UNSW Canberra

Study at UNSW Canberra has lots of useful information regarding:

• Where to get help

• Administrative matters

• Getting your passwords set up

• How to log on to Moodle

• Accessing the Library and other areas.

UNSW Canberra Student Hub

For News and Notices, Student Services and Support, Campus Comminity, Quick Links, Important Dates and Upcoming Events

School Contact Information

Deputy Head of School (Education): Dr Erandi Hene Kankanamge

E: e.henekankanamge@adfa.edu.au

T: 02 5114 5157

Syscom Admin Support: syscom@unsw.edu.au

T: 02 5114 5284

Syscom Admin Office: Building 15, Level 1, Room 101 (open 10am to 4pm, Mon to Fri)