UNSW Course Outline

ZEIT8226 Systems Engineering Practice - 2024

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General Course Information

Course Code : ZEIT8226
Year : 2024
Term : Semester 1
Teaching Period : Z1
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

Systems Engineering Practice provides an understanding of the processes and management practices associated with the systems engineering discipline. The course also introduces tools commonly used in systems engineering and details how systems engineering coexists with other

disciplines (particularly project management).
Systems engineering holds the solution to delivering complex technical projects on time and within budget, avoiding many of the failures of the past. This course covers all aspects of the discipline and provides a framework for the consideration of the issues associated with engineering complex systems.

Course Aims

Successful completion of this course contributes to the acquisition of UNSW graduate capabilities. UNSW aspires to develop globally focused graduates who are **rigorous scholars** capable of **leadership** and **professional practice** in an **international** community.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Articulate the processes and management practices associated with the systems engineering discipline.
CLO2 : Assess strengths and weaknesses of accepted systems engineering methodologies and processes.
CLO3 : Develop major systems engineering plans and artefacts for an example project.
CLO4 : Assess the need, role and contribution of systems engineering in project and business contexts.

Course Learning Outcomes	Assessment Item
CLO1 : Articulate the processes and management practices associated with the systems engineering discipline.	• PowerPoint Presentation • Assignment 1 • Test • Assignment 2
CLO2 : Assess strengths and weaknesses of accepted systems engineering methodologies and processes.	• PowerPoint Presentation • Assignment 1 • Assignment 2
CLO3 : Develop major systems engineering plans and artefacts for an example project.	• Test • Assignment 1 • Assignment 2
CLO4 : Assess the need, role and contribution of systems engineering in project and business contexts.	• Assignment 1 • Assignment 2

Learning and Teaching Technologies

Moodle - Learning Management System

Learning and Teaching in this course

Resources for Students

Compulsory Text

The required course texts are:

- Walden, D. D. (Ed.). (2023). Systems engineering handbook: a guide for system life cycle processes and activities (Fifth edition.). John Wiley & Sons.
- Faulconbridge, R. I., & Ryan, M. J. (2021). Applied systems engineering. Argos Press.

Recommended Readings

A number of relevant articles and readings will be provided on the Moodle site. You should expect to use the library and other resources to augment your understanding of the area and to complete the assignments.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
PowerPoint Presentation Assessment Format: Individual	10%	Due Date: 22/03/2024 11:55 PM
Assignment 1 Assessment Format: Individual	35%	Due Date: 29/04/2024 11:55 PM
Test Assessment Format: Individual	15%	Due Date: 20/05/2024 11:55 PM
Assignment 2 Assessment Format: Individual	35%	Due Date: 07/06/2024 11:55 PM
Learning Activity Participation Assessment Format: Individual	5%	

Assessment Details

PowerPoint Presentation

Assessment Overview

The PowerPoint presentation is designed for you to articulate your understanding of some

systems engineering methodologies and to demonstrate understanding through critiquing those methodologies.

Students will be required to record their presentation and upload this to Moodle for marking. The oral presentation is designed to be relatively short in duration, as such students must be able to articulate their response concisely.

Course Learning Outcomes

- CLO1 : Articulate the processes and management practices associated with the systems engineering discipline.
- CLO2 : Assess strengths and weaknesses of accepted systems engineering methodologies and processes.

Assignment submission Turnitin type

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

Assignment 1

Assessment Overview

The two assignments (posted on the online site) allow you to demonstrate your ability to apply the knowledge and understanding you have gained throughout the course. The assignments require higher-order independent thinking beyond the ability to read, comprehend, and remember the information provided in the course text. They will help you draw together the discrete areas studied in each chapter, particularly chapters 3-8.

You are expected to make a significant effort to complete your assignments (worth 70% of the course marks and approximately 90 hours of effort). Marks for the assignments will be allocated based on the effort you apply and the depth of understanding demonstrated.

Course Learning Outcomes

- CLO1 : Articulate the processes and management practices associated with the systems engineering discipline.
- CLO2 : Assess strengths and weaknesses of accepted systems engineering methodologies and processes.
- CLO3 : Develop major systems engineering plans and artefacts for an example project.
- CLO4 : Assess the need, role and contribution of systems engineering in project and business contexts.

Assignment submission Turnitin type

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

Test

Assessment Overview

Test questions are developed from the revision questions at the end of each chapter of the course text. The test will cover material from Chapters 4 – 8 of the course text.

You may start the test whenever you are ready, but you must have completed the test by the nominated date. You can attempt the test only once—your mark will be based on that attempt. Please note that the test is timed, and you must complete as many questions as you can within the set time.

Course Learning Outcomes

- CLO1 : Articulate the processes and management practices associated with the systems engineering discipline.
- CLO3 : Develop major systems engineering plans and artefacts for an example project.

Assignment submission Turnitin type

This is not a Turnitin assignment

Assignment 2

Assessment Overview

The two assignments (posted on the online site) allow you to demonstrate your ability to apply the knowledge and understanding you have gained throughout the course. The assignments require higher-order independent thinking beyond the ability to read, comprehend, and remember the information provided in the course text. They will help you draw together the discrete areas studied in each chapter, particularly chapters 3-8.

You are expected to make a significant effort to complete your assignments (worth 70% of the course marks and approximately 90 hours of effort). Marks for the assignments will be allocated based on the effort you apply and the depth of understanding demonstrated.

Course Learning Outcomes

- CLO1 : Articulate the processes and management practices associated with the systems engineering discipline.
- CLO2 : Assess strengths and weaknesses of accepted systems engineering methodologies and processes.
- CLO3 : Develop major systems engineering plans and artefacts for an example project.
- CLO4 : Assess the need, role and contribution of systems engineering in project and business contexts.

Assignment submission Turnitin type

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

Learning Activity Participation

Assessment Overview

Several online learning activities will occur throughout the semester. Individual learning activities are not assessed; however, student's participation will attract a participatory grade. They are designed to enable you to apply your reading to short scenarios and receive feedback to help guide your learning and prepare for the assignments.

Students are expected to contribute to at least **3** learning activities throughout the semester via Moodle. This includes conducting the learning activity and providing feedback to at least 1 other student. Students will receive up to a 5% grade for participating fully in at least 3 activities. Further guidance is available on the Moodle site.

Assignment submission Turnitin type

This is not a Turnitin assignment

General Assessment Information

Late Submission of Assessment

Unless prior arrangement is made with the lecturer or a formal application for special consideration is submitted, a penalty of 5% of the total available mark for the assessment will apply for each day that an assessment item is late up to a maximum of 5 days (120 hours) after which an assessment can no longer be submitted and a grade of 0 will be applied.

Grading Basis

Standard

Requirements to pass course

Standards

You are not required to pass any one piece of assessment; you simply need to achieve at least 50 marks out of a total 100 marks to pass this course.

An assignment completion/ marking guide is provided in the Moodle site to support development of your assignment responses. This outlines the general requirements and marking criteria, what is to be covered in each assignment and the weighting applied to each element of

the assignment questions.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 26 February - 1 March	Lecture	Chapter 1 Introduction to Systems Engineering Chapter 2 Requirements Engineering Framework
Week 2 : 4 March - 8 March	Lecture	Chapter 3 Conceptual Design Methodology
Week 3 : 11 March - 15 March	Lecture	Chapter 4 Preliminary Design Assignment 1
Week 4 : 18 March - 22 March	Lecture	Chapter 8 Systems Engineering Management Assignment 1 PowerPoint Presentation due 22 Mar Practice Quiz due 23 Mar
Week 5 : 25 March - 29 March	Lecture	Chapter 5 Detailed Design & Development Chapter 6 Construction and/or Production Chapter 7 Operational Use & System Support Assignment 1
Week 6 : 1 April - 5 April	Lecture	Chapter 9 Systems Engineering Standards Assignment 1
Week 7 : 22 April - 26 April	Lecture	Assignment 1
Week 8 : 29 April - 3 May	Lecture	Assignment 1 Assignment 1 Due 29 Apr
Week 9 : 6 May - 10 May	Lecture	Chapter 10 Related Disciplines Assignment 2
Week 10 : 13 May - 17 May	Lecture	Chapter 11 Systems Engineering & Development Approaches Assignment 2
Week 11 : 20 May - 24 May	Lecture	Test 1 Complete 20 May Assignment 2
Week 12 : 27 May - 31 May	Lecture	Assignment 2
Week 13 : 3 June - 7 June	Lecture	Assignment 2 Due 07 Jun

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		R101, B20	61 2 5114 5183	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
Head lecturer	Keelan Burns				Huadong is usually available by email and during online consultation times via the Moodle Collaborate platform or Teams.	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 Equitible 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 Plagarism

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)

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:

https://student.unsw.edu.au/plagiarism

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.

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 3pm, Mon to Fri)