



## UNSW Course Outline

# ZEIT4501 Engineering Project B - 2024

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## General Course Information

Course Code : ZEIT4501

Year : 2024

Term : Semester 2

Teaching Period : Z2

Is a multi-term course? : No

Faculty : UNSW Canberra

Academic Unit : School of Engineering and Technology

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 course is the “capstone” of your degree. It consolidates findings and the skills developed and refined throughout the degree. It affords the opportunity to take these skills and knowledge from other courses in the degree and forge a valuable contribution by research to the discipline.

Students can take significant ownership of a minor body of research and reflect this to the wider community by presentation and written submission. In doing so students will learn and refine skills in managing a low risk project.

## **Course Aims**

The main aim of this course is to provide an opportunity for undergraduate students to integrate all technical and management knowledges gained during their studies and use them to undertake an in-depth research investigation in an engineering topic selected by the students.

## **Relationship to Other Courses**

At mid-project the Panel will decide if sufficient progress has been demonstrated in ZEIT4500 to allow continuation onto ZEIT4501. A high standard of progress may result in an invitation to enrol also in an additional 6 UoC expansion of the project (ZEIT4297) as a technical elective course.

Cotaught with ZEIT4500/4901/4901/4297

# Course Learning Outcomes

Course Learning Outcomes	Engineers Australia - Professional Engineer (Stage 1)
CLO1 : Demonstrate in-depth knowledge of a niche research area, as reported for assessment.	<ul style="list-style-type: none"> <li>• PEE1.1 : Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline</li> <li>• PEE1.2 : Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline</li> <li>• PEE1.3 : In-depth understanding of specialist bodies of knowledge within the engineering discipline</li> <li>• PEE1.4 : Discernment of knowledge development and research directions within the engineering discipline</li> <li>• PEE1.5 : Knowledge of engineering design practice and contextual factors impacting the engineering discipline</li> <li>• PEE1.6 : Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline</li> </ul>
CLO2 : Exhibit communication skills for oral seminar, oral panel, and written medium, to a quality that has	<ul style="list-style-type: none"> <li>• PEE3.2 : Effective oral and written communication in professional and lay domains</li> <li>• PEE3.5 : Orderly management of self, and professional conduct</li> </ul>
CLO3 : Demonstrate information and digital literacy in defining the scope of the research in the broader context science and engineering.	<ul style="list-style-type: none"> <li>• PEE1.3 : In-depth understanding of specialist bodies of knowledge within the engineering discipline</li> <li>• PEE1.4 : Discernment of knowledge development and research directions within the engineering discipline</li> <li>• PEE1.5 : Knowledge of engineering design practice and contextual factors impacting the engineering discipline</li> <li>• PEE1.6 : Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline</li> <li>• PEE2.1 : Application of established engineering methods to complex engineering problem solving</li> <li>• PEE2.2 : Fluent application of engineering techniques, tools and resources</li> <li>• PEE2.3 : Application of systematic engineering synthesis and design processes</li> <li>• PEE3.3 : Creative, innovative and pro-active</li> </ul>

	<p>demeanour</p> <ul style="list-style-type: none"> <li>• PEE3.4 : Professional use and management of information</li> </ul>
CLO4 : Demonstrate rigour in analysis, critique and reflection within a design or research task.	<ul style="list-style-type: none"> <li>• PEE2.3 : Application of systematic engineering synthesis and design processes</li> <li>• PEE3.1 : Ethical conduct and professional accountability</li> <li>• PEE3.5 : Orderly management of self, and professional conduct</li> </ul>
CLO5 : Shown application of knowledge obtained herein, and building on that learnt throughout the degree, to solve a minor research problem.	<ul style="list-style-type: none"> <li>• PEE1.6 : Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline</li> <li>• PEE2.1 : Application of established engineering methods to complex engineering problem solving</li> <li>• PEE3.3 : Creative, innovative and pro-active demeanour</li> <li>• PEE3.4 : Professional use and management of information</li> </ul>
CLO6 : Experienced and refined methodology for management of a small project, as also observed through panel and peer interaction.	<ul style="list-style-type: none"> <li>• PEE3.1 : Ethical conduct and professional accountability</li> <li>• PEE3.4 : Professional use and management of information</li> </ul>
CLO7 : Documented and adopted findings from work experience in Engineering, in Industry.	<ul style="list-style-type: none"> <li>• PEE1.5 : Knowledge of engineering design practice and contextual factors impacting the engineering discipline</li> <li>• PEE2.1 : Application of established engineering methods to complex engineering problem solving</li> <li>• PEE2.2 : Fluent application of engineering techniques, tools and resources</li> <li>• PEE2.3 : Application of systematic engineering synthesis and design processes</li> <li>• PEE3.1 : Ethical conduct and professional accountability</li> <li>• PEE3.2 : Effective oral and written communication in professional and lay domains</li> <li>• PEE3.4 : Professional use and management of information</li> </ul>
CLO8 : Indicated an insight into the diversity of Engineering through a course in specialist lectures.	<ul style="list-style-type: none"> <li>• PEE1.3 : In-depth understanding of specialist bodies of knowledge within the engineering discipline</li> <li>• PEE1.6 : Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline</li> <li>• PEE3.2 : Effective oral and written communication in professional and lay domains</li> </ul>

	• PEE3.3 : Creative, innovative and pro-active demeanour
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Course Learning Outcomes	Assessment Item
CLO1 : Demonstrate in-depth knowledge of a niche research area, as reported for assessment.	<ul style="list-style-type: none"> <li>• Project Preliminary Report and Viva</li> <li>• Project Seminar</li> <li>• Project Research Summary</li> <li>• Project Specific Deliverable</li> </ul>
CLO2 : Exhibit communication skills for oral seminar, oral panel, and written medium, to a quality that has	<ul style="list-style-type: none"> <li>• Project Preliminary Report and Viva</li> <li>• Project Seminar</li> <li>• Project Research Summary</li> <li>• Project Specific Deliverable</li> </ul>
CLO3 : Demonstrate information and digital literacy in defining the scope of the research in the broader context science and engineering.	<ul style="list-style-type: none"> <li>• Project Preliminary Report and Viva</li> <li>• Project Seminar</li> <li>• Project Research Summary</li> <li>• Project Specific Deliverable</li> </ul>
CLO4 : Demonstrate rigour in analysis, critique and reflection within a design or research task.	<ul style="list-style-type: none"> <li>• Project Preliminary Report and Viva</li> <li>• Project Research Summary</li> <li>• Project Specific Deliverable</li> </ul>
CLO5 : Shown application of knowledge obtained herein, and building on that learnt throughout the degree, to solve a minor research problem.	<ul style="list-style-type: none"> <li>• Project Seminar</li> <li>• Project Preliminary Report and Viva</li> <li>• Project Research Summary</li> <li>• Project Specific Deliverable</li> </ul>
CLO6 : Experienced and refined methodology for management of a small project, as also observed through panel and peer interaction.	<ul style="list-style-type: none"> <li>• Project Seminar</li> <li>• Project Preliminary Report and Viva</li> </ul>
CLO7 : Documented and adopted findings from work experience in Engineering, in Industry.	<ul style="list-style-type: none"> <li>• Project Research Summary</li> <li>• Project Specific Deliverable</li> </ul>
CLO8 : Indicated an insight into the diversity of Engineering through a course in specialist lectures.	<ul style="list-style-type: none"> <li>• Project Research Summary</li> <li>• Project Specific Deliverable</li> </ul>

## Learning and Teaching Technologies

Moodle - Learning Management System

## Learning and Teaching in this course

The Learning 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 7, 10, Mac OSX Sierra, iPad IOS10

For further details about system requirements click [here](#).

Log in to Moodle [here](#).

If you need further assistance with Moodle:

For enrolment and login issues please contact:

IT Service Centre

Email: [itservicecentre@unsw.edu.au](mailto: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](mailto: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

## Additional Course Information

You may be allocated after-hours building access to specialist research laboratories should you

require space to build hardware or conduct experiments. This is a decision taken by the Coordinator and/or the Panel on a needs basis and is subject to available resources. The Coordinator and/or the Panel can arrange this on your behalf with the Building Officer. Where possible we have installed fastening points so you can lock your computer/laptop in a secure fashion. The provision of suitable Kensington locks or similar is your responsibility.

During your work, you will undoubtedly obtain the likes of textbooks, software, equipment, etc. that should be returned to its source provider prior to completion of the project. You will be required to complete the return of such items, signed-off by the Panel and returned to the School office before any mark is released for this course.

Equipment should not be moved between laboratories without permission being obtained from the workshop staff. Removal of equipment outside the building requires your supervisor's approval.

If it is appropriate and you wish to take the completed work with you at the end of the project, then you **must purchase all components** yourself. If **any components** are purchased by the University you **will not be allowed** to take the completed work.

The School reserves the right to ask you to present or demonstrate your work in order to clarify issues arising in its examination. Should this be necessary then you will be notified before the end of the examination period. For this reason you should not dismantle or delete work prior to the end of the examination period, and you should not make arrangements to go on leave during this time.

Many of you will be working in specialist research laboratories, and workshops. The School provides student workshop facilities for your use, and provides training for use of the equipment. You will need instruction from the staff responsible for those areas on potential hazards and risks in those areas, and H&S methods to be adopted. The Panel can arrange this training as a group. General information on relevant Health and Safety policies and expectations is found [here](#).

In case that your project involves human research which is with or about people or their data or tissue/biological sample, then you will need to obtain Human Ethics Approval. More details can be found in the introduction briefing in Week 1o of ZEIT4500 as well as the [Research Ethics site](#).

Access to Workshops and TSG, or if you need consumables to support your project, can only be arranged with your Panel. Please involve your supervisors in this. Only those with current

competencies can use the Student Workshop. Access to the other workshops for project work can only be arranged with your Panel.

If a student wishes to receive any TSG support from the workshops or any other laboratories, the student **MUST** submit a TSG plan summary by the end of Week 5 of the first semester study to the student's supervisors and panel for approval and discussion with the School's TSG.

No costs will be reimbursed to a student without prior panel approval being given.

## Academic Integrity and Plagiarism

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 <https://www.gs.unsw.edu.au/policy/documents/studentcodepolicy.pdf>

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>

## Referencing

*In this course, students are required to reference following the APA 7 / Chicago NB referencing style.* Information about referencing styles is available at: <https://guides.lib.unsw.adfa.edu.au/c.php?g=472948&p=3246720>

## Study at UNSW Canberra

<https://www.unsw.adfa.edu.au/study>

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.

### Additional Information as required

CRICOS Provider no. 00098G

The University of New South Wales Canberra.

# Assessments

## Assessment Structure

Assessment Item	Weight	Relevant Dates
Project Preliminary Report and Viva Assessment Format: Individual	25%	Start Date: Not Applicable Due Date: Not Applicable
Project Seminar Assessment Format: Individual	10%	Due Date: Week 12: 14 October - 18 October
Project Research Summary Assessment Format: Individual	35%	Start Date: Not Applicable Due Date: 21/10/2024 11:59 PM
Project Specific Deliverable Assessment Format: Individual	30%	Start Date: Not Applicable Due Date: 25/10/2024 11:59 PM

## Assessment Details

### Project Preliminary Report and Viva

#### Assessment Overview

The student will in consultation with the supervisor/s develop an **Interim Report** that outlines the scope and significance of the intended research. It will define where this project sits in the wider context of its application, and will include a project management timeline. It will detail reading and progress made on the project up till the date of submission. This will serve as a document to address in the oral defence. **It should be submitted by email to the supervisor and the Panel Chair.**

**An oral defence or Viva** to a small panel of academics of your project direction, and partial work towards the objectives will be scheduled in Weeks 11 and 12 of your first project semester for ZEIT4500. The submitted Preliminary Report above, will serve as supporting documentation in this defence. The members of the Panel will assign a mark. The format of the Viva will be communicated to you and the Panel.

#### Course Learning Outcomes

- CL01 : Demonstrate in-depth knowledge of a niche research area, as reported for assessment.

- CL02 : Exhibit communication skills for oral seminar, oral panel, and written medium, to a quality that has
- CL03 : Demonstrate information and digital literacy in defining the scope of the research in the broader context science and engineering.
- CL04 : Demonstrate rigour in analysis, critique and reflection within a design or research task.
- CL05 : Shown application of knowledge obtained herein, and building on that learnt throughout the degree, to solve a minor research problem.
- CL06 : Experienced and refined methodology for management of a small project, as also observed through panel and peer interaction.

#### **Assessment information**

Preliminary report needs to be submitted through Turnitin.

#### **Assignment submission Turnitin type**

Not Applicable

#### **Hurdle rules**

Students need to pass this assessment to enroll ZEIT4501

### **Project Seminar**

#### **Assessment Overview**

A Seminar of 12 minutes duration with 3 minutes of question time will be conducted in Week 11 and 12 of your second project semester the week. The audience of this seminar will be your supervisors, peers, academic and technical staff, and members of the general public. The academic members of the audience will assess this work.

#### **Course Learning Outcomes**

- CL01 : Demonstrate in-depth knowledge of a niche research area, as reported for assessment.
- CL02 : Exhibit communication skills for oral seminar, oral panel, and written medium, to a quality that has
- CL03 : Demonstrate information and digital literacy in defining the scope of the research in the broader context science and engineering.
- CL05 : Shown application of knowledge obtained herein, and building on that learnt throughout the degree, to solve a minor research problem.
- CL06 : Experienced and refined methodology for management of a small project, as also observed through panel and peer interaction.

#### **Assignment submission Turnitin type**

Not Applicable

# Project Research Summary

## Assessment Overview

A 10 page **Research Summary** is a written reflection on the project definition, impact, significance, and conclusions will be submitted for review to the School Undergraduate Journal. It is a communication of your contribution to the focus area and engineering discipline. It will be submitted electronically in PDF format to the School student journal (JUER, <https://ojs.unsw.adfa.edu.au/index.php/juer/index>) Guidelines on document structure are provided. Your supervisor and Panel will also provide guidance on how to write and structure this document to best communicate the significance of your project work to the area of research.

All research summary reports **must** go through the **Turnitin check** via the course Moodle site. All students must submit their draft versions two weeks before the project seminar week for a prelim screening so that they can use the **Originality Report** generated to improve their final version. The due date for the **final version summary and the corresponding Originality Report** is the Monday of Week 13 (or Week 14 for students who start their projects in Semester 1) of the second project semester. The Panel will assess and review this work, and may request revisions, whereupon the final submission completes this assessment.

## Course Learning Outcomes

- CL01 : Demonstrate in-depth knowledge of a niche research area, as reported for assessment.
- CL02 : Exhibit communication skills for oral seminar, oral panel, and written medium, to a quality that has
- CL03 : Demonstrate information and digital literacy in defining the scope of the research in the broader context science and engineering.
- CL04 : Demonstrate rigour in analysis, critique and reflection within a design or research task.
- CL05 : Shown application of knowledge obtained herein, and building on that learnt throughout the degree, to solve a minor research problem.
- CL07 : Documented and adopted findings from work experience in Engineering, in Industry.
- CL08 : Indicated an insight into the diversity of Engineering through a course in specialist lectures.

## Assessment Length

10 pages

## Assignment submission Turnitin type

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

## Project Specific Deliverable

### Assessment Overview

A Project Specific Deliverable will be identified by your supervisor as reasonable documentation required to support and document the project work so it may be continued by others. This may include electronic working files and designs, documentation of the operations of tools and software used in the project, a traditional research thesis, etc. The form of this deliverable will be detailed in writing at the outset of your study and the Memorandum of Understanding (MoU) signed, and will have been recognised by the Panel as representing a similar workload as required of other students enrolled in this course. The Project Specific Deliverable should be provided directly to the supervisor by Monday, revision week of the second project semester, and the quality and content will form part of their assessment of your work.

### Course Learning Outcomes

- CL01 : Demonstrate in-depth knowledge of a niche research area, as reported for assessment.
- CL02 : Exhibit communication skills for oral seminar, oral panel, and written medium, to a quality that has
- CL03 : Demonstrate information and digital literacy in defining the scope of the research in the broader context science and engineering.
- CL04 : Demonstrate rigour in analysis, critique and reflection within a design or research task.
- CL05 : Shown application of knowledge obtained herein, and building on that learnt throughout the degree, to solve a minor research problem.
- CL07 : Documented and adopted findings from work experience in Engineering, in Industry.
- CL08 : Indicated an insight into the diversity of Engineering through a course in specialist lectures.

### Assignment submission Turnitin type

Not Applicable

## General Assessment Information

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.

This study stretches across two semesters with an EC grade provided in the first session, updated to final grade at the conclusion of the courses. In these courses you shall undertake a body of work under the technical supervision of one or more academic staff, and guidance of a group of interested academics (The Panel). The topic of this research will be decided in consultation with you and the supervisors, and allocated on the basis of availability of staff and

resources. By default, all student have approached their potential supervisor and have already chosen and have been allocated a project before their first semester of project work start. The coordinator's default position is to disallow any student who has failed their project previously from undertaking a new project on the same research topic.

The Head of School reserves the right to remove a student's enrolment if performance is deemed unsatisfactory. At mid-project the Panel will decide if sufficient progress has been demonstrated to allow continuation onto ZEIT4501. A high standard of progress may result in an invitation to enrol also in an additional 6 UoC expansion of the project (ZEIT4297) as a technical elective course. For unsatisfactory performance a FL grade will be recorded, and a new project and re-enrolment in ZEIT4500 will be required.

Any student who receives a mark in the range 46- 49 in a course will have their performance reviewed by the school/discipline assessment meeting. If the meeting is satisfied that the student has demonstrated achievement of all of the learning outcomes at least once, a grade of 50 PS will be recommended. The meeting should record its reasons for deciding to recommend 50 PS, or to leave the student's mark under 50.

### **Late submission**

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.

### **AI Usage**

For the project report, you may use standard editing and referencing software, but not Generative AI. You are permitted to use the full capabilities of the standard software (such as Microsoft Office suite, Grammarly, etc.).

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. [Alternative wording: You are required to submit the original AI generated responses as set out below] (Consider what would be the minimum requirement for you to be satisfied of the originality of the submitted work, and the workload implications of any

detailed examination as part of the marking).

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.

Grading Basis

Standard

# Course Schedule

## Attendance Requirements

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

## General Schedule Information

Assessment	Due date
Project Research Summary	21/10/2024
Project Seminar	Week 12
Project Specific Deliverable.	25/10/2024

# Course Resources

## 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 this 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. Student opinions really do make a difference. Refer to the Moodle site for this 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 Policy

<https://www.gs.unsw.edu.au/policy/documents/studentcodepolicy.pdf>

## Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Jianfeng Xue		Room: 128, Building 20	51145225	Available by appointment	No	Yes