



## UNSW Course Outline

# ZEIT4902 Engineering Research 4B - 2024

Published on the 19 Feb 2024

## General Course Information

Course Code : ZEIT4902

Year : 2024

Term : Semester 1

Teaching Period : Z1

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 : 12

### Useful Links

[Handbook Class Timetable](#)

## Course Details & Outcomes

### Course Description

Students will undertake a problem-based learning project of scope commensurate with the level of attainment expected of a final-year Engineering student in the CDF Students Program. The project will take the form of a piece of research or investigation, or a feasibility study or design

chosen from a list of topics selected or approved by the Head of School. In each case at least one staff member will be nominated as a supervisor to provide guidance and general supervision during the project. Students will be assessed through their seminar presentations, attended by other students and members of staff, and the project thesis. Evidence of sufficient progress may be required from time to time. The thesis, which will have a nominal length of 20,000 words, is to be presented not later than the first day of the examination period. Theses must be presented both typed and suitably bound and in electronic form.

This is the second half of a year-long course.

## Course Aims

This research-based set of courses extends over **two semesters, each with 12 UOC**. Since the assessment for each is linked they are combined in this single course outline. Successful completion of two of these courses on the same topic is required. Topics for study are selected in the year previous to this enrolment, usually from a list of topics provided by the School that are closely aligned to current research directions and development platforms within the School. Provided a suitable supervisor is found within the School, topics may differ from those suggested and even may be conducted outside the School.

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 you will learn and refine skills in managing a low risk project.

## Relationship to Other Courses

The Course is co-managed with ZEIT4500 and ZEIT4501 and runs concurrently with ZEIT2901 and ZEIT3901.

# Course Learning Outcomes

| Course Learning Outcomes   | Engineers Australia - Professional Engineer (Stage 1)   |
|--|---|
| CLO1 : Demonstrate an in-depth knowledge of a niche research area, as reported for assessment.   | <ul style="list-style-type: none"> <li>• PEE2.1 : Application of established engineering methods to complex engineering problem solving</li> <li>• PEE2.3 : Application of systematic engineering synthesis and design processes</li> <li>• PEE3.3 : Creative, innovative and pro-active demeanour</li> <li>• PEE3.6 : Effective team membership and team leadership</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> </ul>   |
| CLO3 : Demonstrated 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>• PEE2.4 : Application of systematic approaches to the conduct and management of projects within the technology domain</li> <li>• PEE3.4 : Professional use and management of information</li> </ul>   |
| CLO4 : Demonstrated rigour in analysis, critique and reflection within a design or research task.  | <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> <li>• PEE2.1 : Application of established engineering methods to complex engineering problem solving</li> <li>• PEE2.3 : Application of systematic engineering synthesis and design processes</li> <li>• PEE3.3 : Creative, innovative and pro-active demeanour</li> </ul> |
| CLO5 : Shown application of knowledge  | <ul style="list-style-type: none"> <li>• PEE1.1 : Comprehensive, theory based</li> </ul>  |

|   |   |
|---|---|
| <p>obtained herein, and building on that learnt throughout the degree, to solve a minor research problem.</p>                             | <p>understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline</p> <ul style="list-style-type: none"> <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> <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> </ul> |
| <p>CLO6 : Experienced and refined methodology for management of a small project, as also observed through panel and peer interaction.</p> | <ul style="list-style-type: none"> <li>• PEE2.3 : Application of systematic engineering synthesis and design processes</li> <li>• PEE2.4 : Application of systematic approaches to the conduct and management of projects within the technology domain</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>• PEE3.3 : Creative, innovative and pro-active demeanour</li> <li>• PEE3.4 : Professional use and management of information</li> <li>• PEE3.5 : Orderly management of self, and professional conduct</li> <li>• PEE3.6 : Effective team membership and team leadership</li> </ul>  |
| <p>CLO7 : Documented and adopted findings from work experience in Engineering, in Industry.</p>   | <ul style="list-style-type: none"> <li>• PEE2.1 : Application of established engineering methods to complex engineering problem solving</li> <li>• PEE2.3 : Application of systematic engineering synthesis and design processes</li> <li>• PEE2.4 : Application of systematic approaches to the conduct and management of projects within the technology domain</li> </ul>   |

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|  | <ul style="list-style-type: none"> <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>• 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> </ul> |

| Course Learning Outcomes   | Assessment Item   |
|--|---|
| CLO1 : Demonstrate an 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 Specific Deliverable</li> <li>• Project Research Summary</li> <li>• CDF Seminar Journal</li> <li>• Project Seminar</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 Specific Deliverable</li> <li>• Project Research Summary</li> <li>• CDF Seminar Journal</li> <li>• Project Seminar</li> </ul> |
| CLO3 : Demonstrated 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 Specific Deliverable</li> <li>• Project Research Summary</li> <li>• CDF Seminar Journal</li> <li>• Project Seminar</li> </ul> |
| CLO4 : Demonstrated 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 Specific Deliverable</li> <li>• Project Research Summary</li> <li>• CDF Seminar Journal</li> <li>• Project Seminar</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 Preliminary Report and Viva</li> <li>• Project Specific Deliverable</li> <li>• Project Research Summary</li> <li>• CDF Seminar Journal</li> <li>• Project Seminar</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 Preliminary Report and Viva</li> <li>• CDF Seminar Journal</li> <li>• Project Seminar</li> </ul>   |
| CLO7 : Documented and adopted findings from work experience in Engineering, in Industry.   | <ul style="list-style-type: none"> <li>• Project Specific Deliverable</li> <li>• Project Research Summary</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 Specific Deliverable</li> <li>• Project Research Summary</li> <li>• CDF Seminar Journal</li> </ul>   |

## Learning and Teaching Technologies

Moodle - Learning Management System

## Learning and Teaching in this course

It is recognised that this is the first body of research to be undertaken by the student, and as such there is a combination of mentoring by the supervisor/s, and opportunity to self-develop valuable skills and understanding of the research area.

Written and oral presentation is used both as an experience for the student of the methods used in academic and industrial careers, and as assessment of the capability of the student.

The assessment and Panel meetings are structured to monitor the student's progress and provide opportunity to refine the management techniques during the execution of the project.

Throughout the course of the year, assessment has been distributed so as to allow the staff to assess student capability. Panel meetings assess progress, and act as guide to the students themselves on their progress towards a successful and rewarding outcome. The student is guided to manage the work outputs against external demands, workshop timelines, and course deadlines. They are encouraged to benchmark themselves against expectations and success of their work, and the work of others within the same research cohort. Through Panel interaction they learn to adjust the expectations for improved productivity.

## **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

This research-based set of courses extends over **two semesters, each with 12 UOC**. Since the assessment for each is linked they are combined in this single course outline. Successful completion of two of these courses on the same topic is required. Topics for study are selected in the year previous to this enrolment, usually from a list of topics provided by the School that are closely aligned to current research directions and development platforms within the School. Provided a suitable supervisor is found within the School, topics may differ from those suggested and even may be conducted outside the School.

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 you will learn and refine skills in managing a low risk project.

**You should arrange your first project meeting with your supervisor not later than the second week of the first project semester.** Please make regular contact and use of them. Their role is to aid your learning in the chosen research area. In fact, they are your mentor. The guidance and significant knowledge in the area of research as well as techniques for research that they can convey is the most valuable resources.

A Panel of academics familiar with your area, is also formed to guide you through your project, providing you with initial direction, to help you overcome barriers in the research process, as well as to assess how well you perform and adapt to the research. They give you feedback from the various parts of assessment. You should gain their advice on how to communicate in the assessments. You will have a formal meeting with the Panel, and other students whom they are guiding, on a monthly basis.

Where possible, you will be able to seek consultancy with the supervisor/s at any time during normal working hours. The best way to arrange this is by email. It is highly advised you make a regular appointment with your supervisor/s to discuss project and directions.

### **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**

*Adapt the following 'Referencing' statements according to the practice within your School. In line with UNSW Canberra policy, undergraduate students must be instructed to use either the APA 7 or Chicago NB (notes and bibliography) referencing conventions.*

*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  | Engineers Australia - Professional Engineer (Stage 1)  |
|--|--------|---|--|
| Project Preliminary Report and Viva Assessment<br>Format: Individual | 25%    | Start Date: Not Applicable<br>Due Date: Not Applicable      | <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>• PEE2.1 : Application of established engineering methods to complex engineering problem solving</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>• PEE3.3 : Creative, innovative and pro-active demeanour</li><li>• PEE3.4 : Professional use and management of information</li><li>• PEE3.5 : Orderly management of self, and professional conduct</li></ul> |
| Project Specific Deliverable Assessment<br>Format: Individual        | 30%    | Start Date: Not Applicable<br>Due Date: 07/06/2024 11:59 PM | <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></ul>   |

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|  |  | <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>• PEE2.4 : Application of systematic approaches to the conduct and management of projects within the technology domain</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>• PEE3.3 : Creative, innovative and pro-active demeanour</li> <li>• PEE3.4 : Professional use and management of information</li> <li>• PEE3.5 : Orderly</li> </ul> |
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|   |     |   |   |
|---|-----|---|---|
|   |     |   | management of self, and professional conduct<br>• PEE3.6 : Effective team membership and team leadership  |
| Project Research Summary Assessment<br>Format: Individual | 30% | Start Date: Not Applicable<br>Due Date: 03/06/2024 11:59 PM | • PEE1.1 : Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline<br>• PEE1.2 : Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline<br>• PEE1.3 : In-depth understanding of specialist bodies of knowledge within the engineering discipline<br>• PEE1.4 : Discernment of knowledge development and research directions within the engineering discipline<br>• PEE1.5 : Knowledge of engineering design practice and contextual factors impacting the engineering discipline<br>• PEE1.6 : Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline<br>• PEE2.1 : Application of established engineering methods to complex engineering problem solving<br>• PEE2.2 : Fluent application of engineering techniques, tools and resources<br>• PEE2.3 : Application of systematic engineering synthesis and design processes |

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|  |     |  | <ul style="list-style-type: none"> <li>• PEE2.4 : Application of systematic approaches to the conduct and management of projects within the technology domain</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>• PEE3.3 : Creative, innovative and pro-active demeanour</li> <li>• PEE3.4 : Professional use and management of information</li> <li>• PEE3.5 : Orderly management of self, and professional conduct</li> <li>• PEE3.6 : Effective team membership and team leadership</li> </ul> |
| CDF Seminar Journal Assessment<br>Format: Individual | 5%  | Start Date: Not Applicable<br>Due Date: 07/06/2024<br>11:59 PM                             | <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>• PEE3.2 : Effective oral and written communication in professional and lay domains</li> <li>• PEE3.3 : Creative, innovative and pro-active demeanour</li> </ul>   |
| Project Seminar Assessment<br>Format: Individual     | 10% | Start Date: Not Applicable<br>Due Date: Week 11: 20 May - 24 May, Week 12: 27 May - 31 May | <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>• PEE3.2 : Effective oral and written communication in</li> </ul>  |

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|  |  |  | professional and lay domains<br>• PEE3.3 : Creative, innovative and pro-active demeanour |
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## Assessment Details

### Project Preliminary Report and Viva

#### Assessment Overview

The student will, in consultation with the supervisor/s, develop a Preliminary 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 an 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 : Demonstrated information and digital literacy in defining the scope of the research in the broader context science and engineering.
- CL04 : Demonstrated 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.

#### Detailed Assessment Description

The oral defence or Viva will be scheduled in **Weeks 11 and 12 of ZEIT4500 or as advised by the individual Panel Chair.**

The Viva weighs 5% and the Report weighs 20% of the total marks.

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

This assignment is submitted through Turnitin and students can 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 an 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 : Demonstrated information and digital literacy in defining the scope of the research in the broader context science and engineering.
- CL04 : Demonstrated 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.

#### **Submission notes**

The deliverables are to be submitted by the last day of the last week of ZEIT4501 to your supervisor and the Panel Chair.

### Assignment submission Turnitin type

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

## **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) (see [https://gateway.unsw.adfa.edu.au/ojs/index.php/ju\\_er](https://gateway.unsw.adfa.edu.au/ojs/index.php/ju_er)).

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 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 an 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 : Demonstrated information and digital literacy in defining the scope of the research in the broader context science and engineering.
- CL04 : Demonstrated 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.

### Submission notes

The summary reports are to be submitted by the first day of the last week of ZEIT4501 to your

supervisor and the Panel Chair.

#### Assignment submission Turnitin type

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

## **CDF Seminar Journal**

#### Assessment Overview

A CDF Seminar Journal must be kept, to be handed in with the final report. Students' marks will be downgraded if they have not attended a particular seminar without a valid reason. This journal should include entries of ~250 words per week. These entries should answer the question what did you learn during the seminar. Include your own reflections, such as comments and questions on the material, and attempt to relate the material to what you already know.

#### Course Learning Outcomes

- CL01 : Demonstrate an 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 : Demonstrated information and digital literacy in defining the scope of the research in the broader context science and engineering.
- CL04 : Demonstrated 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.
- CL08 : Indicated an insight into the diversity of engineering through a course in specialist lectures.

#### Assignment submission Turnitin type

This is not a Turnitin assignment

## **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 an 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 : Demonstrated information and digital literacy in defining the scope of the research in the broader context science and engineering.
- CL04 : Demonstrated 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.

### Detailed Assessment Description

The exact presentation schedule will be organized by the Panel Chair of ZEIT4501.

### Assignment submission Turnitin type

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

## **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 the 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 the 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 starts. **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, an 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 of 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.

*Final Year Project (FYP) enrolment is flexible. ZEIT4500 constitutes the first half of FYP (H1); ZEIT4501 constitutes the second half of FYP (H2). A typical enrolment is 4500 (H1) in S1 and 4501 (H2) in S2. To elucidate varying semester lengths enrolments, this document details assessment against an N-week long semester (In 2023, both S1 and S2 have N=13). (N-0) means 13<sup>th</sup> week; (N-1) means 12<sup>th</sup> week, etc.*

### **Whole course moderation process**

It is important in such a large and diverse course as this to have confidence in the standards being expected of students, and that the marking reflects those standards. It is reasonable that student and staff will expect the school to take every possible step to ensure the quality, scope and assessment are equitable across all streams and Panels in this Engineering Project course, so such steps are outlined here for their information.

Students should note the offering of projects and the MoU detailing student contributions, are closely monitored by the Panels, and the Coordinator, to ensure equity in what is defined as the Project Specific Deliverable; Expected scope and standards of evidence required in the submissions of all projects are discussed by the Panel academics prior to the project starting; Staff and students alike are regularly reminded of the marking schedule as a precursor to assessing all parts of this work; The Coordinator and other select supervisors sit on multiple Panels to moderate expectations. In this context they are able to align the marking standards and interpretations in an equitable way; Written assessments are also sometimes read by members of other Panels, as well as the Coordinator, to detect any essence of difference, and if these arise, discussions are undertaken to resolve them; The Panel meetings held regularly, provide a forum to discuss and illuminate expectations; Panel chairs have access to the same resources and instructions provided to the students, on the Moodle site, and reflect these to their Panel; Importantly, refinement of this process is integral to the continuing improvement of the course. Academic staff and students provide crucial feedback that strengthens this course.

## Late Submission of Assessment

Unless prior arrangement is made with the Panel Chair 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.

All requests for special consideration must be formally submitted via MyUNSW prior to the assessment due date. Abiding by the framework, should you, for reasons of illness or misadventure, fail to meet the submission dates, or be unavailable for the oral presentations above, appropriate documentation should be presented as soon as practicable after recovery, and arrangements will be made in consultation with the Engineering Project Coordinator for a late submission.

Supplementary assessment in the event of failure of the course is generally not available, and should not be expected.

## Use of Generative AI in Assessments

### 1. SIMPLE EDITING ASSISTANCE (Reports)

*For this assessment task, you may use standard editing and referencing software, but not Generative AI. You are permitted to use the full capabilities of the standard software to answer the question (e.g. you may wish to specify particular software such as Microsoft Office suite, Grammarly, etc.).*

*If the use of generative AI such as ChatGPT is detected, it will be regarded as serious academic misconduct and subject to the standard penalties, which may include 00FL, suspension and exclusion.*

### 2. PLANNING ASSISTANCE (Research activities)

*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.*  
*[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.*

*\* 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, nor properly referenced. You should ensure that you have moderated and critically evaluated the outputs from generative AI tools such as ChatGPT before submission.*

## Referencing

APA referencing format is recommended in your project report.

<https://www.student.unsw.edu.au/how-cite-references-apa-style>

## Grading Basis

Standard

## Requirements to pass course

### Compulsory components or minimum performance standards

*The overall passing mark is set at 50%. In addition, it is a mandatory requirement of these courses that you attend at least 8 specialist lectures (due to COVID-19 unpredictability, all 8 can be consumed online as webinars), and will have completed the practical work experience.*

While attendance of the specialist lectures will not contribute to the final mark of the course, you **must keep a brief record** of the specialist lectures attended by using the summary form available on Moodle and upload it to the course **Moodle site by the date indicated in the table above.**

Instructions on work experience are dispatched to you through the Work Experience Moodle Site. **You must lodge all the required documentation to that Moodle site for Work Experience as soon as the requirements are completed.** Failure to provide either set of documentation will result in a Withheld (WD) grade.

## Engineering ethics and research integrity

A mandatory competency-based online module on the principles of engineering ethics and research integrity is provided to all students via Moodle. This module includes a refresher of the ethical principles underpinning the field of engineering and research integrity and an online quiz. You need to score more than 75% on the online quiz to demonstrate your competency in engineering ethics and research integrity. Students have no limit on the number of attempts required for this module.

This is a competency-based module. Passing the quiz will not affect the final marks of the course or your WAM. However, if a student fails to pass the quiz, a UF will be received by the student for this course.

## Course Schedule

| Teaching Week/Module           | Activity Type | Content   |
|--------------------------------|---------------|---|
| Week 1 : 26 February - 1 March | Lecture       | Introduction of the course                              |
| Week 2 : 4 March - 8 March     | Seminar       | ZEIT4901 (+ Honorary) Seminars                          |
| Week 3 : 11 March - 15 March   | Other         | Canberra Day  |
| Week 4 : 18 March - 22 March   | Seminar       | ZEIT3901 Seminars                                       |
| Week 5 : 25 March - 29 March   | Seminar       | ZEIT3901 Seminars                                       |
| Week 6 : 1 April - 5 April     | Other         | Easter Monday   |
| Week 7 : 22 April - 26 April   | Seminar       | ZEIT2901 Seminars                                       |
| Week 8 : 29 April - 3 May      | Seminar       | Invited speakers  |
| Week 9 : 6 May - 10 May        | Seminar       | ZEIT3901 Seminars                                       |
| Week 10 : 13 May - 17 May      | Seminar       | ZEIT3901 Seminars                                       |
| Week 11 : 20 May - 24 May      | Seminar       | ZEIT3901 Seminars                                       |
|                                | Presentation  | The Project presentation for ZEIT4902.                  |
| Week 12 : 27 May - 31 May      | Seminar       | ZEIT2901 Seminars                                       |
|                                | Presentation  | The Project presentation for ZEIT4902 is due this week. |
| Week 13 : 3 June - 7 June      | Seminar       | ZEIT2901 Seminars                                       |
|                                | Project       | Project Research Summay<br>Project Specific Deliverable |
|                                | Assessment    | CDF Seminar Journal                                     |

## Attendance Requirements

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

## General Schedule Information

Due to the nature of this course, there will be NO regular lecture during the semester time. The two reserved time slots (1hr and 2hrs) simply ensure that all students shall have two free time

slots per week to meet with their supervisors and/or panel meetings. **However, at the first week of each semester, two compulsory briefings will be arranged and all students must attend.** The first briefing will cover matters related to the course learning outcomes, overall project schedule, panel meeting, support from the Technical Support Group (TSG). The second briefing will focus library support, and report writing skills. **In addition, in each semester up to three compulsory seminars jointly organized by the School and Engineer Australia may be arranged.**

Each panel will organise a set of meeting times that works for everyone. **You should expect to have fortnightly panel meetings (around 4-6 meetings per semester + VIVA/Seminar).** Important deadlines are indicated in the Assessment section.

The structure of the research topic is one for you to develop under the guidance of your supervisor(s). There is significant opportunity within the semester timetabling during normal hours for you to undertake the work. Use the time between scheduled courses to make progress on this project.

It is highly recommended that you participate in regular scheduled meetings with your supervisor/s to discuss project objectives, progress, and skills. Similar consultations with the TSG are provided for those undertaking hardware development projects to aid you in structuring timelines for production and assembly and to learn from experienced Mentors. **It is your responsibility, with guidance from these mentors and your supervisor/s, to manage your outputs to meet workshop schedules, such that you are able to complete the objectives of your research.**

You are expected to continue to participate in **weekly CDF seminars**. These will be arranged according to the following schedule.

## Course Resources

### Prescribed Resources

*There are no required resources for students. Recommended resources will be specified by students' individual project supervisors.*

### Recommended Resources

Students might find the following references useful for improving research and technical writing skills:

[User Guides, Manuals, and Technical Writing: A Guide to Professional English](#)

Wallwork, Adrian, New York : Springer; 2014

### [Research methods for engineers](#)

Thiel, David V., Cambridge : Cambridge University Press; 2014

The references can be accessed via the links below through the library:

<https://link-springer-com.wwwproxy1.library.unsw.edu.au/book/10.1007/978-1-4939-0641-3>

<https://www-cambridge-org.wwwproxy1.library.unsw.edu.au/core/books/research-methods-for-engineers/DD1A91B7C81C464EE764EFA89BF94AAB>

## **Additional Costs**

Please discuss with individual supervisors for any cost incurred for research activities.

## **Course Evaluation and Development**

Students are encouraged to provide feedback to the course coordinator anytime in any form during the course. The coordinator will act accordingly depending on the urgency and availability of resources. Any request regarding research activities can be discussed with academic supervisors. Students need to talk to the course coordinator when having difficulties communicating with academic supervisors.

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 can also provide feedback during the semester via 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 |       | R128 B20 | 51145225 | Available by appointment | No                                  | Yes             |

## 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 Equitable 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 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. Find relevant information at: [Student Code of Conduct \(unsw.edu.au\)](https://www.student.unsw.edu.au/student-code-of-conduct)

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.