



## UNSW Course Outline

# GSOE9010 Engineering Postgraduate Coursework Research Skills - 2024

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## General Course Information

**Course Code :** GSOE9010

**Year :** 2024

**Term :** Term 3

**Teaching Period :** T3

**Is a multi-term course? :** No

**Faculty :** Faculty of Engineering

**Academic Unit :** Faculty of Engineering

**Delivery Mode :** In Person

**Delivery Format :** Standard

**Delivery Location :** Kensington

**Campus :** Sydney

**Study Level :** Postgraduate

**Units of Credit :** 6

### Useful Links

[Handbook Class Timetable](#)

## Course Details & Outcomes

### Course Description

This course is designed to develop research and communication skills and strategies that would

support the Research Project component of the program. There are weekly guest lectures and tutorials, Moodle course activities and assignments. The course themes include: formulating a research topic, managing a research project, locating and critically evaluating the literature, engineering research methods, writing about research, speaking about research, academic integrity.

Students will critically review literature; formulate a research program for a small topic in an area of engineering; develop interpersonal skills needed for project management and collaborative research; and communicate their research topic to expert and non-expert audiences.

## Course Aims

1. Develop students' skills in locating and critically evaluating the literature relating to a research project.
2. Inform students about engineering research methods.
3. Raise awareness of the interpersonal skills relevant to project management and collaborative research.
4. Develop students' understanding and skills in communicating in a variety of genres.
5. Provide students with strategies for constructively giving and responding to feedback.

# Course Learning Outcomes

Course Learning Outcomes
CLO1 : Locate and critically analyse research papers, and develop a review of literature on a specific research topic.
CLO2 : Formulate a thesis problem, research hypotheses and aims and describe methodologies to test these in a research proposal report.
CLO3 : Develop interpersonal skills needed for project management and collaborative research..
CLO4 : Clearly and concisely communicate a research topic to expert and non-expert audiences, in both verbal and written media.
CLO5 : Identify their strengths and weaknesses in communicating their research and develop strategies to improve their communication skills.

Course Learning Outcomes	Assessment Item
CLO1 : Locate and critically analyse research papers, and develop a review of literature on a specific research topic.	<ul style="list-style-type: none"><li>• Team Innovation Project</li><li>• Individual Research Proposal</li></ul>
CLO2 : Formulate a thesis problem, research hypotheses and aims and describe methodologies to test these in a research proposal report.	<ul style="list-style-type: none"><li>• Team Innovation Project</li><li>• Individual Research Proposal</li></ul>
CLO3 : Develop interpersonal skills needed for project management and collaborative research..	<ul style="list-style-type: none"><li>• Facilitation in Workshop</li><li>• Team Innovation Project</li></ul>
CLO4 : Clearly and concisely communicate a research topic to expert and non-expert audiences, in both verbal and written media.	<ul style="list-style-type: none"><li>• Facilitation in Workshop</li><li>• Individual Research Proposal</li><li>• Team Innovation Project</li></ul>
CLO5 : Identify their strengths and weaknesses in communicating their research and develop strategies to improve their communication skills.	<ul style="list-style-type: none"><li>• Facilitation in Workshop</li></ul>

## Learning and Teaching Technologies

Moodle - Learning Management System | Zoom | Echo 360

## Learning and Teaching in this course

There is no formal textbook for this course, you may wish to consult the "recommended resources" if you would like additional guidance.

Videos and other material will be made available as the course progresses. The course Moodle site will hold all of the resources you need, apart from the ones you discover yourself during your exploration of topics for the team project and the research proposal.

## Additional Course Information

The only assumed knowledge we make is that students have completed an undergraduate degree in a technical domain such as Engineering or Science.

# Assessments

## Assessment Structure

Assessment Item	Weight	Relevant Dates
Team Innovation Project Assessment Format: Group	25%	Start Date: Not Applicable Due Date: Not Applicable
Facilitation in Workshop Assessment Format: Group	10%	Start Date: Not Applicable Due Date: Not Applicable
Individual Research Proposal Assessment Format: Individual	55%	Start Date: Not Applicable Due Date: Not Applicable
Pre-lecture Quizzes Assessment Format: Individual	10%	Start Date: Not Applicable Due Date: Not Applicable

## Assessment Details

### Team Innovation Project

#### Assessment Overview

Students will work in teams of four to six people to investigate a topic chosen in the first two tutorials. They should explore the engineering aspects of the topic, identifying research and innovation opportunities. The team should collaborate to assemble a set of resources on the topic, using whatever collaboration tools they wish. There are a number of milestones to be submitted during the semester (e.g. group roles, mind-map of the topic, bibliography, etc.).

On Monday of Week 7, each team must submit a poster presenting the global status of research on that topic. Then, in Week 10, each team must submit a 3-minute video presenting a relevant specific case study and a proposal for an innovative engineering solution to the problem. The team will be awarded a mark for the poster and video, and each team member's mark will then be modified by the peer-assessment of their individual contribution.

#### Course Learning Outcomes

- CLO1 : Locate and critically analyse research papers, and develop a review of literature on a

specific research topic.

- CLO2 : Formulate a thesis problem, research hypotheses and aims and describe methodologies to test these in a research proposal report.
- CLO3 : Develop interpersonal skills needed for project management and collaborative research..
- CLO4 : Clearly and concisely communicate a research topic to expert and non-expert audiences, in both verbal and written media.

#### Assignment submission Turnitin type

Not Applicable

#### Generative AI Permission Level

No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

## Facilitation in Workshop

#### Assessment Overview

Students work in groups (usually three members) to prepare and facilitate a 50 minute workshop during the first part of an allocated tutorial period. The workshop will follow a list of class activities; activities will be posted on the class Moodle site in the week prior to facilitation.

#### Course Learning Outcomes

- CLO3 : Develop interpersonal skills needed for project management and collaborative research..
- CLO4 : Clearly and concisely communicate a research topic to expert and non-expert audiences, in both verbal and written media.
- CLO5 : Identify their strengths and weaknesses in communicating their research and develop strategies to improve their communication skills.

#### Assignment submission Turnitin type

Not Applicable

#### Generative AI Permission Level

No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate

information or answers.

For more information on Generative AI and permitted use please see [here](#).

## Individual Research Proposal

### Assessment Overview

Each student will choose a topic from their own discipline on which to develop a research proposal. This topic does not have to be related to the topic of their team project. The final proposal must contain a description of the topic, the current practice (and its deficiencies), and suggest an innovation to improve practice, along with a description of experimental work and its analysis that would be required to convince others that the innovation did improve practice.

### Course Learning Outcomes

- CLO1 : Locate and critically analyse research papers, and develop a review of literature on a specific research topic.
- CLO2 : Formulate a thesis problem, research hypotheses and aims and describe methodologies to test these in a research proposal report.
- CLO4 : Clearly and concisely communicate a research topic to expert and non-expert audiences, in both verbal and written media.

### Assignment submission Turnitin type

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

### Generative AI Permission Level

#### No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

## Pre-lecture Quizzes

### Assessment Overview

Pre-lecture quizzes will be placed on the Moodle site to accompany the video material for each lecture. Students should complete each quiz after viewing the corresponding videos. Only one attempt will be allowed for the quiz.

### Assignment submission Turnitin type

Not Applicable

## Generative AI Permission Level

### No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

## General Assessment Information

As a student at UNSW you are expected to display [academic integrity](#) in your work and interactions. Where a student breaches the [UNSW Student Code](#) with respect to academic integrity, the University may take disciplinary action under the Student Misconduct Procedure. To assure academic integrity, you may be required to demonstrate reasoning, research and the process of constructing work submitted for assessment.

To assist you in understanding what academic integrity means, and how to ensure that you do comply with the UNSW Student Code, it is strongly recommended that you complete the [Working with Academic Integrity](#) module before submitting your first assessment task. It is a free, online self-paced Moodle module that should take about one hour to complete.

You are expected to complete all assessment tasks for your courses in the School of Accounting, Auditing & Taxation. In some courses, there will be a minimum pass mark required on the final exam due to the need to assure individual mastery of specific course learning outcomes for accounting accreditation requirements. Where applicable this is explained in the assessment section of this course outline.

This course will have an invigilated exam held on UNSW's Kensington campus. The exam will be conducted on Inspera, an online assessment platform. It is a mandatory requirement that you attend the exam on-campus (even if you are only attending online classes) and that you come with a fully charged laptop with Safe Exam Browser (SEB) installed. For information about On-Campus Invigilated Exams requirements and conditions please visit [here](#).

Further instructions on how to prepare for this exam will be provided to you during the term.

### Grading Basis

Standard

## Requirements to pass course

In order to pass this course, you must:

- Achieve a composite mark of at least 50 out of 100;
- Meet any additional requirements described in the Assessment Summary section.

You are expected to attempt all assessment requirements in the course.

# Course Schedule

Teaching Week/Module	Activity Type	Content
Week 0 : 2 September - 8 September	Online Activity	Please familiarise yourself with the Moodle site for this course, and key information presented in the "Getting Started Hub" on Moodle.
Week 1 : 9 September - 15 September	Lecture	Course overview, structure format and expectations. Prepare by reading the course outline & assessment tasksheet.
	Workshop	Introduction & facilitation demonstration
Week 2 : 16 September - 22 September	Lecture	Group Dynamics
	Workshop	Group dynamics
Week 3 : 23 September - 29 September	Lecture	Literature Search
	Tutorial	Literature Search
Week 4 : 30 September - 6 October	Lecture	Lecture: Writing
	Workshop	Topic 3: Writing
Week 5 : 7 October - 13 October	Lecture	Topic 5: Presenting
	Workshop	Presenting
Week 6 : 14 October - 20 October	Lecture	Research Integrity
	Workshop	Academic integrity
Week 7 : 21 October - 27 October	Lecture	Statistics
	Tutorial	Statistics
	Assessment	Engineering Challenge group poster
Week 8 : 28 October - 3 November	Lecture	Experimental Design
	Tutorial	Experimental Design
Week 9 : 4 November - 10 November	Lecture	Research profiles
	Workshop	Research profiles
Week 10 : 11 November - 17 November	Presentation	Engineering challenge video screening
	Assessment	Individual research project submission

## Attendance Requirements

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

## General Schedule Information

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

Please note that lecture recordings are not available for this course. Students are strongly

encouraged to attend all classes

# Course Resources

## Prescribed Resources

There is no formal textbook for this course, you may wish to consult the following resources if you would like additional guidance:

Academic writing for graduate students : essential tasks and skills, John Swales, Christine B Feak, 3rd ed., Ann Arbor, Mich. : University of Michigan Press, 2012

The Literature Review : A Step-by-Step Guide for Students, Diana Ridley, Sage Publications Ltd (UK), 2012

Critical Reading and Writing for Postgraduates, Mike Wallace, Alison Wray, Sage Publications Ltd (UK), 2016

Writing for Science and Engineering: Papers, Presentations and Reports, Heather Silyn-Roberts, Oxford : Butterworth-Heinemann. 2000

The Pyramid Principle Logic in Writing and Thinking, Barbara Minto, 2008

## Recommended Resources

See: Prescribed resources for students

## Additional Costs

N/A

## Course Evaluation and Development

Your feedback is essential for its future development and we adjust the course in response to the comments we have received from student. With your feedback, we can continue adapting the course to best meet the needs of students in the future. Towards the end of the course you will be invited to provide feedback using a "My Experience" link on Moodle.

# Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Lecturer	Ned Ekins-Daukes					No	Yes
	Xiaojing Hao					No	No

## Other Useful Information

### Academic Information

#### I. Special consideration and supplementary assessment

If you have experienced an illness or misadventure beyond your control that will interfere with your assessment performance, you are eligible to apply for Special Consideration prior to, or within 3 working days of, submitting an assessment or sitting an exam.

Please note that UNSW has a Fit to Sit rule, which means that if you sit an exam, you are declaring yourself fit enough to do so and cannot later apply for Special Consideration.

For details of applying for Special Consideration and conditions for the award of supplementary assessment, please see the information on UNSW's [Special Consideration page](#).

#### II. Administrative matters and links

All students are expected to read and be familiar with UNSW guidelines and polices. In particular, students should be familiar with the following:

- [Attendance](#)
- [UNSW Email Address](#)
- [Special Consideration](#)
- [Exams](#)
- [Approved Calculators](#)
- [Academic Honesty and Plagiarism](#)
- [Equitable Learning Services](#)

#### III. Equity and diversity

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at

the commencement of, their course, or with the Equity Officer (Disability) in the Equitable Learning Services. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

#### **IV. Professional Outcomes and Program Design**

Students are able to review the relevant professional outcomes and program designs for their streams by going to the following link: <https://www.unsw.edu.au/engineering/student-life/student-resources/program-design>.

*Note: This course outline sets out the description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle or your primary learning management system (LMS) should be consulted for the up-to-date class descriptions. If there is any inconsistency in the description of activities between the University timetable and the Course Outline/Moodle/LMS, the description in the Course Outline/Moodle/LMS applies.*

#### **Academic Honesty and Plagiarism**

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.*

Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. UNSW has produced a website with a wealth of resources to support students to understand and avoid plagiarism, visit: <student.unsw.edu.au/plagiarism>. The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one.

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also

be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in an honours thesis or contract cheating) even suspension from the university. The Student Misconduct Procedures are available here:

[www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf](http://www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf)

## Submission of Assessment Tasks

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of five percent (5%) of the maximum mark possible for that assessment item, per calendar day.

The late penalty is applied per calendar day (including weekends and public holidays) that the assessment is overdue. There is no pro-rata of the late penalty for submissions made part way through a day. This is for all assessments where a penalty applies.

Work submitted after five days (120 hours) will not be accepted and a mark of zero will be awarded for that assessment item.

For some assessment items, a late penalty may not be appropriate. These will be clearly indicated in the course outline, and such assessments will receive a mark of zero if not completed by the specified date. Examples include:

- Weekly online tests or laboratory work worth a small proportion of the subject mark;
- Exams, peer feedback and team evaluation surveys;
- Online quizzes where answers are released to students on completion;
- Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date; and,
- Pass/Fail assessment tasks.

## Faculty-specific Information

[Engineering Student Support Services](#) – The Nucleus - enrolment, progression checks, clash requests, course issues or program-related queries

[Engineering Industrial Training](#) – Industrial training questions

[UNSW Study Abroad](#) – study abroad student enquiries (for inbound students)

UNSW Exchange – student exchange enquiries (for inbound students)

UNSW Future Students – potential student enquiries e.g. admissions, fees, programs, credit transfer

**Phone**

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)