



**UNSW**

## UNSW Course Outline

# GSOE9510 Ethics and Leadership in Engineering - 2024

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## General Course Information

**Course Code :** GSOE9510

**Year :** 2024

**Term :** Term 1

**Teaching Period :** T1

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

**Faculty :** Faculty of Engineering

**Academic Unit :** School of Electrical Engineering & Telecommunications

**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 aims to help students understand the importance and necessity of professional and ethical responsibility. The course also focuses on engineering leadership in the context of professional engineering roles.

The course is designed to provide an understanding of the complex, interrelated working environments in which engineers practice, and introduce practical guidance for interacting professionally when practising their profession, especially within large and small organisations under strong commercial drivers.

The course covers topics including theories of leadership, the leadership of teams, organisational behaviour, strategic planning, uncertainty and risk, the interaction of laws with engineering projects and innovations, the role of engineering in society; assessment of innovation in processes and products, engineering ethics principles and practice, an introduction to ethical systems, the application of ethical frameworks to engineering practice with particular reference to electrical engineering and computing, codes of ethics in the professions. Ethical analyses will be specifically informed by codes of practice provided by the Engineers Australia and other engineering professional organisations.

## Course Aims

This course helps students understand the importance and necessity of professional and ethical responsibility. The course also focuses on engineering leadership in the context of professional engineering roles.

In particular, the course aims to equip students with the ability to:

- Recognise and respond to ethical issues;
- Exercise ethical thinking and apply ethical judgement; and
- Develop leadership capability with an engineering mindset.

## Course Learning Outcomes

Course Learning Outcomes
CLO1 : Identify ethical problems in the context of engineering practice and identify ethical decision models
CLO2 : Apply the concepts embodied in codes of ethical conduct to professional situations
CLO3 : Critically assess and discuss conflicting view and attitudes on ethical issues in respectful and inclusive dialogue
CLO4 : Explain effective leadership roles and strategies and apply them in a variety of workplace settings
CLO5 : Exhibit persuasive verbal communication skills, and effective teamwork evidenced by strong and sustained contributions from every member

Course Learning Outcomes	Assessment Item
CLO1 : Identify ethical problems in the context of engineering practice and identify ethical decision models	<ul style="list-style-type: none"> <li>• Quizzes</li> <li>• Exam</li> <li>• Presentations</li> </ul>
CLO2 : Apply the concepts embodied in codes of ethical conduct to professional situations	<ul style="list-style-type: none"> <li>• Quizzes</li> <li>• Exam</li> <li>• Presentations</li> </ul>
CLO3 : Critically assess and discuss conflicting view and attitudes on ethical issues in respectful and inclusive dialogue	<ul style="list-style-type: none"> <li>• Quizzes</li> <li>• Exam</li> <li>• Presentations</li> </ul>
CLO4 : Explain effective leadership roles and strategies and apply them in a variety of workplace settings	<ul style="list-style-type: none"> <li>• Quizzes</li> <li>• Exam</li> <li>• Presentations</li> </ul>
CLO5 : Exhibit persuasive verbal communication skills, and effective teamwork evidenced by strong and sustained contributions from every member	<ul style="list-style-type: none"> <li>• Quizzes</li> <li>• Exam</li> <li>• Presentations</li> </ul>

## Learning and Teaching Technologies

Microsoft Teams

# Other Professional Outcomes

## Engineers Australia, Professional Engineer Stage 1 Competencies

The learning outcomes of this course contribute to your development of the following EA competencies:

	EA Stage 1 Competencies	Course Learning Outcomes (CLOs)
PE1: Knowledge and Skill Base	PE1.1 Comprehensive, theory-based understanding of underpinning fundamentals  PE1.2 Conceptual understanding of underpinning maths, analysis, statistics, computing  PE1.3 In-depth understanding of specialist bodies of knowledge  PE1.4 Discernment of knowledge development and research directions  PE1.5 Knowledge of engineering design practice  PE1.6 Understanding of scope, principles, norms, accountabilities of sustainable engineering practice	1      1, 2, 3, 4, 5
PE2: Engineering Application Ability	PE2.1 Application of established engineering methods to complex problem solving  PE2.2 Fluent application of engineering techniques, tools and resources  PE2.3 Application of systematic engineering synthesis and design processes  PE2.4 Application of systematic approaches to the conduct and management of engineering projects	2, 3, 4
PE3: Professional and Personal Attributes	PE3.1 Ethical conduct and professional accountability  PE3.2 Effective oral and written communication (professional and lay domains)  PE3.3 Creative, innovative and pro-active demeanour  PE3.4 Professional use and management of information  PE3.5 Orderly management of self, and professional conduct  PE3.6 Effective team membership and team leadership	1, 2, 3, 4  5  3, 4  1, 2, 3, 4, 5  4, 5

# Assessments

## Assessment Structure

Assessment Item	Weight	Relevant Dates
Quizzes Assessment Format: Individual	30%	Start Date: Not Applicable Due Date: Not Applicable
Exam Assessment Format: Individual	30%	Start Date: Not Applicable Due Date: Not Applicable
Presentations Assessment Format: Group	40%	Start Date: Not Applicable Due Date: Not Applicable

## Assessment Details

### Quizzes

#### Assessment Overview

There will be 3 short in-class quizzes throughout the term. This will be an opportunity for students to demonstrate their mastery of the ethical concepts presented during the lectures and reinforced by the presentations. Each quiz is worth 10%. Work is marked according to correct answers for multiple-choice questions and against assessment criteria for short-answer questions. Verbal class-wide feedback will be given during lectures and individual feedback will also be provided upon request.

#### Course Learning Outcomes

- CLO1 : Identify ethical problems in the context of engineering practice and identify ethical decision models
- CLO2 : Apply the concepts embodied in codes of ethical conduct to professional situations
- CLO3 : Critically assess and discuss conflicting view and attitudes on ethical issues in respectful and inclusive dialogue
- CLO4 : Explain effective leadership roles and strategies and apply them in a variety of workplace settings
- CLO5 : Exhibit persuasive verbal communication skills, and effective teamwork evidenced by strong and sustained contributions from every member

#### Assignment submission Turnitin type

Not Applicable

### Exam

#### Assessment Overview

The exam is scheduled at the end of the term. It contains short answer questions where the

students can demonstrate mastery and understanding of all the theoretical principles, frameworks, and code of practice that was introduced during the course. Marking will be against specific criteria in a marking guide.

### Course Learning Outcomes

- CLO1 : Identify ethical problems in the context of engineering practice and identify ethical decision models
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- CLO4 : Explain effective leadership roles and strategies and apply them in a variety of workplace settings
- CLO5 : Exhibit persuasive verbal communication skills, and effective teamwork evidenced by strong and sustained contributions from every member

### Assignment submission Turnitin type

Not Applicable

### **Presentations**

#### Assessment Overview

This assesses your involvement in group work addressing a given ethical problem by making active contributions and the development of the presentation. Then helping and presenting the finds to peers weekly.

**Involvement and Active Contribution to Seminars:** Your active contributions (presentation, discussions/debates, and team leadership) to the weekly seminars throughout the term will be noted by the mentor. This means working on the activities, and actively listening and appropriately contributing to discussions; not simply being physically present. Mentors will give feedback as you progress through the term, and then at the end of the term, your mentor will assign a mark for your active contribution to all seminars and active participation throughout the term. **Marks are assigned based on the quality of the content that you contribute based on rubric.** The group performance accounts for 10%, and the remaining 30% weight goes to individual performance. **You must pass your individual assessment to pass the course.** Note that there will be no marks given for just attending the seminar.

### Course Learning Outcomes

- CLO1 : Identify ethical problems in the context of engineering practice and identify ethical decision models
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- respectful and inclusive dialogue
- CLO4 : Explain effective leadership roles and strategies and apply them in a variety of workplace settings
  - CLO5 : Exhibit persuasive verbal communication skills, and effective teamwork evidenced by strong and sustained contributions from every member

#### Assignment submission Turnitin type

Not Applicable

## General Assessment Information

### Grading Basis

Standard

## Course Schedule

### Attendance Requirements

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

## Course Resources

### Prescribed Resources

No prescribed resources

### Recommended Resources

Reference books

Lecture material will mostly be based on

- Charles E. Harris, Michael S. Pritchard, Michael J. Rabins, Ray James, and Eline Englehardt, *Engineering Ethics: Concepts and Cases*, Wadsworth, Boston, MA, 2014

Good books to read:

- Mike W. Martin and Roland Schinzinger, *Ethics in Engineering*, 4th Edition, McGraw-Hill, NY, 2005
- Charles B. Fleddermann, *Engineering Ethics*, Fourth Edition, Pearson, 2012

### Additional Resources

- [Engineering Ethics in Practice: A guide for Engineers](#) - Royal Academy of Engineering UK
- [Code of Ethics and Guidelines on Professional Conduct](#) - IEAust
- [Engineering Ethics: Concepts and Cases \(Electrical Engineering Cases\)](#) - NSF Workshop

## Cases

- [Markkula Centre for Applied Ethics: Technology Ethics Cases](#) - Santa Clara University
- P. G. Northouse, Leadership Theory and Practice, 4th edition, Sage Publications, 2016
- E Gundling & C Williams, Inclusive Leadership: From Awareness to Action, Aperian Global, 2019
- Quick Guide to Unconscious Bias – <http://tiny.cc/UBQuickGuide>

## Course Evaluation and Development

Class survey in week 6.

## Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Aruna Seneviratne		G17 - 304	02 9385 5389	Monday 1200-1500	No	Yes

## 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)

## **School-specific Information**

### **General Conduct and Behaviour**

Consideration and respect for the needs of your fellow students and teaching staff is an expectation. Conduct which unduly disrupts or interferes with a class is not acceptable and students may be asked to leave the class.

### **Use of AI for assessments**

Your work must be your own. If you use AI in the writing of your assessment, you must acknowledge this and your submission must be substantially your own work. More information can be found on this [website](#).

### **Workplace Health & Safety (WHS)**

WHS for students and staff is of utmost priority. Most courses involve laboratory work. You must follow the [rules about conduct in the laboratory](#). About COVID-19, advice can be found on

this [website](#).

## School Contact Information

**Consultations:** Lecturer consultation times will be advised during the first lecture. You are welcome to email the tutor or laboratory demonstrator, who can answer your questions on this course and can also provide you with consultation times. ALL email enquiries should be made from your student email address with ELEC/TELEXXXX in the subject line; otherwise they will not be answered.

**Keeping Informed:** Announcements may be made during classes, via email (to your student email address) and/or via online learning and teaching platforms – in this course, we will use Moodle <https://moodle.telt.unsw.edu.au/login/index.php>. Please note that you will be deemed to have received this information, so you should take careful note of all announcements.

### Student Support Enquiries

[For enrolment and progression enquiries please contact Student Services](#)

### Web

[Electrical Engineering Homepage](#)