

GSOE9510

Ethics and Leadership in Engineering

Summer, 2023



Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Waheeda Jabbar	w.jabbar@unsw.edu.au		G17-344	

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](#)

[Engineering Student Support Services](#)

[Engineering Industrial Training](#)

[UNSW Study Abroad and Exchange](#) (for inbound students)

[UNSW Future Students](#)

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)

Email

[Engineering Student Support Services](#) – current student enquiries

- e.g. enrolment, progression, 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

Course Details

Units of Credit 6

Summary of the Course

The role of engineering in society; assessment of technological innovations. Engineering ethics principles and practice; an introduction to ethical systems; the application of ethical frameworks to engineering practice and related technologies; codes of ethics in the professions. Social, legal, environmental and economic considerations; sustainability. Theories of leadership; leadership of teams. Organisation behaviour.

Course Aims

This course is primarily designed to enhance your ability to (i) analyse ethical problems, determine a plan of action, and articulate this resolution to others, and (ii) make decisions about technological innovations and, thereby, to engage productively in the leadership of various groups. In both cases we are primarily interested in the context of engineering, but the skills apply equally to your wider life. A further expectation is to provide you with (i) an understanding of the complex, interlocking organisations that form the wider, non-technical context in which engineers practice, and (ii) some practical guidance both for interacting professionally with other engineers, wherever they might be, and for conducting yourselves as engineers, especially within large organisations under strong commercial pressures. Ethical analyses will be specifically informed by formal guidance from Engineers Australia (2019).

Course Learning Outcomes

After successfully completing this course, you should be able to:

Learning Outcome	EA Stage 1 Competencies
1. Identify ethical problems in the context of engineering practice and identify ethical decision models	PE3.1
2. Apply the concepts embodied in codes of ethical conduct to professional situations	PE3.1
3. Critically assess and discuss conflicting view and attitudes on ethical issues in respectful and inclusive dialogue	PE3.1, PE3.5, PE3.6
4. Explain effective leadership roles and strategies and apply them in a variety of workplace settings	PE3.6
5. Exhibit persuasive verbal communication skills, and effective teamwork evidenced by strong and sustained contributions from every member	PE3.2, PE3.6

Learning outcomes

After the successful completion of this course, the student will be able to

- describe the social, environmental, regulatory, & organisational context of engineering and identify which of its features are important for an engineering design;
- identify ethical problems, particularly in the context of engineering practice;
- formulate and communicate consistent, coherent responses to such problems, using the formal language of ethics, and critically examine the ethical arguments proposed by others;
- use different criteria, including aspects of sustainability, to evaluate technological innovations;
- help lead, i.e. facilitate the effective working of, a team (be it a technical project team or those involved in using an innovation); and
- identify ways to assess and reduce risks, especially those associated with human limitations.

In summary, we expect you will improve your ability to consider problems from multiple perspectives and make decisions associated with uncertain, inconsistent and imprecisely defined requirements, as is often the case when people are involved. Additionally, students are expected to improve their skills in gathering and synthesising information, in the oral and written presentation of arguments, in listening, and in working with other people, some of whom will have ideas and beliefs very different from your own. It is clear these objectives can be met only when students actually engage in discussing and debating (both written and oral) the course of action which should be followed, i.e. the 'best' decision.

Teaching Strategies

GSOE9510 consists of the following elements: lectures, tutorial-based activities, on-line activities, and self-paced learning.

Self-paced learning: This is not a conventional lecture course. (Some students do not believe this and complain when it is different!) Rather than having a set of traditional 'instructional' lectures, this course is structured as a reading course. This means that you will only completely develop your knowledge of the core material by reading the prescribed resources, not at lectures. It is an important professional skill to be able to search through information and identify what you need. You will not advance far in your profession if you cannot do this. Think: papers, reports and manuals. Text-based documentation is everywhere. This course is designed to enhance this skill needed for professional independence. Of course, no lecture notes will be handed out, but you will receive suggested readings. Further, being able to organise your own learning will stand you in good stead for the rest of your lives. It is also important to be able to reflect on what you have learned, for without doing so you cannot identify what you yet need to learn. (Some students complain because they want something that requires them to be less independence!)

Key reading resources: Instead of needing to read everything on the list in detail, you can share the task. You can take advantage of work done by each other. You will each have an assigned reading and from this develop a learning resource to be placed on moodle and explaining key concepts of the GSOE9510 syllabus.

Plenary Classes: Formal 'lectures' merely introduce the main themes of the course, provide some motivation, and present the fundamental concepts you must understand. In other classes we will have visitors who will discuss specific topics, set in a specific context.

Tutorials: The other classroom activities occur in smaller groups. They provide structured reflection on some of the ideas explored during the course and will afford you the chance to share your

understandings and experiences with each other, facilitated by a tutor. Once again you will practise key skills. The syllabus of this course is not such that you can learn without active engagement with other people.

Moodle: There is an on-line component for this course using moodle. Students are expected to participate in the activities.

Team projects: As this course explores theory about leadership, it is important to have practical work, too (just like labs). There are two team projects. These will give you an opportunity to practise what is learnt about teamwork and leadership as well as develop some of the other learning objectives of the course.

Additional Course Information

Course details: Units of Credit: GSOE9510 is a 6 UoC course; we emphasis that 6 UoC means 6 UoC: the indicative student workload is 150 hr, i.e. 35 hr/wk, allowing some time for exam and preparation. Of course, the amount of work you actually choose to do depends upon your ambition and your ability.

Classes: In Summer Term, GSOE9510 has classes running 2 days each week, for 5 weeks, starting 3 Jan and ending 26 Feb. You will find a detailed class schedule at timetable.unsw.edu.au/2023/GSOE9510.html

Assessment

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Exam	50%	04/02/2023 04:00 PM	1, 2, 3, 4, 5
2. Seminars and tutorials	20%	Not Applicable	1, 2, 3, 4, 5
2. Homework assessments	30%	Not Applicable	1, 2, 3, 4, 5

Assessment 1: Exam

Start date: 04/02/2023 01:00 PM

Assessment length: 2 hours

Due date: 04/02/2023 04:00 PM

Your exam mark counts as 50% of your total mark. The written examination, after classes end, will be of 2 hr duration. It will test critical thinking and general understanding of the course material in a controlled setting. It will be an open-book exam. The final exam will be held on 4 Sat Feb.

Assessment 2: Seminars and tutorials

Class-room Participation: You are required to participate during classes. This means working on the activities, actively listening and appropriately contributing to discussions, not simply being physically present. If you do not do these things, you will not learn what we expect you to learn this session, notably how to respond when asked a question. Classroom discussion will occur in a small group context. There will be no participation marks given for mere presence. Further details explaining participation are in a separate document. If you do not have a formal, acceptable explanation for missing a class, your participation mark will be reduced.

Simulation Project: In this activity, you will work in a team of 3 to 6 students. The teams will compete against each other to win a simulation game that will be played using moodle as the interface. The game will run over the course duration, with the first round played Tuesday 10 Jan. With only one round each day, there will be time between rounds of play for your team to discuss its strategy. The team will receive a mark on the basis of how well it functions and also its success in the game. After the game concludes, you will be required to write a short individual reflection statement about how it went. Full details of this task's requirements are in separate documents. Any student who is repeating this course will participate in a different project (so that the game is not spoiled for others).

Online Learning Resource: Your team (same team as above) will also develop an on-line learning resource in form of a video for the class, based on an assigned reading relevant to this course. This video is expected to use the ideas explored in this reading and, of course, the learning objectives of this course. Each student will then be required to assess and mark the videos from 5 other teams (peer-assessment). The resource for a typical chapter is expected to take a typical student only 15 minutes to work through.

A few readings are longer and will be given to larger teams. The resulting resource will, of course, be longer in this case. Full details of this task's requirements are in separate documents. The chapters for the learning resources will be allocated to teams by Friday 6

Jan. All learning resources are due Thu 19 Jan.

Assessment 3: Homework assessments

You will have THREE short homework assignments, due Thursdays (12, 19 & 26 Jan.). Each will require you to write about 250-300 words. Full details of this task's requirements are in the relevant document that will be given out later.

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings. Attendance and participation in the tutorial workshops is mandatory and the students' contribution is part of the assessment for the course.

Course Schedule

Critical dates for student work:

Day	Date	Student Work
Thursday	5 Jan	Team memberships completed
Friday	6 Jan	Resource chapters allocated
Tuesday	10 Jan	Play Round 1 of simulation project
Thursday	12 Jan	Homework 1 submitted
Thursday	19 Jan	Submit learning resource
Thursday	26 Jan	Homework 3 submitted
Saturday	28 Jan	Complete team project reflection questionnaires
Saturday	4 Feb	Exam

Academic Honesty and Plagiarism

Academic Honesty and Plagiarism

Plagiarism is the unacknowledged use of other people's work, including the copying of assignment works and laboratory results from other students. Plagiarism is considered a form of academic misconduct, and the University has very strict rules that include some severe penalties. For UNSW policies, penalties and information to help you avoid plagiarism, see <https://student.unsw.edu.au/plagiarism>. To find out if you understand plagiarism correctly, try this short quiz: <https://student.unsw.edu.au/plagiarism-quiz>.

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.

Academic Information

COVID19 - Important Health Related Notice

Your health and the health of those in your class is critically important. You must stay at home if you are sick or have been advised to self-isolate by [NSW health](#) or government authorities. Current alerts and a list of hotspots can be found [here](#). **You will not be penalised for missing a face-to-face activity due to illness or a requirement to self-isolate.** We will work with you to ensure continuity of learning during your isolation and have plans in place for you to catch up on any content or learning activities you may miss. Where this might not be possible, an application for fee remission may be discussed.

If you are required to self-isolate and/or need emotional or financial support, please contact the [Nucleus: Student Hub](#). If you are unable to complete an assessment, or attend a class with an attendance or participation requirement, please let your teacher know and apply for [special consideration](#) through the [Special Consideration portal](#). To advise the University of a positive COVID-19 test result or if you suspect you have COVID-19 and are being tested, please fill in this [form](#).

UNSW requires all staff and students to follow NSW Health advice. Any failure to act in accordance with that advice may amount to a breach of the Student Code of Conduct. Please refer to the [Safe Return to Campus](#) guide for students for more information on safe practices.

Dates to note

Important Dates available at: <https://student.unsw.edu.au/dates>

Student Responsibilities and Conduct

Students are expected to be familiar with and adhere to all UNSW policies (see <https://student.unsw.edu.au/policy>), and particular attention is drawn to the following:

Workload

It is expected that you will spend at least **15 hours per week** studying a 6 UoC course, from Week 1 until the final assessment, including both formal classes and *independent, self-directed study*. In periods where you need to complete assignments or prepare for examinations, the workload may be greater. Over-commitment has been a common source of failure for many students. You should take the required workload into account when planning how to balance study with employment and other activities.

Attendance

Regular and punctual attendance at all classes is expected. UNSW regulations state that if students attend less than 80% of scheduled classes they may be refused final assessment.

Work Health and Safety

UNSW policy requires each person to work safely and responsibly, in order to avoid personal injury and to protect the safety of others.

Special Consideration and Supplementary Examinations

You must submit all assignments and attend all examinations scheduled for your course. You can apply for special consideration when illness or other circumstances beyond your control interfere with an assessment performance. If you need to submit an application for special consideration for an exam or assessment, you must submit the application **prior to the start** of the exam or before the assessment is submitted, except where illness or misadventure prevent you from doing so. Be aware of the “fit to sit/submit” rule which means that if you sit an exam or submit an assignment, you are declaring yourself well enough to do so and cannot later apply for Special Consideration. For more information and how to apply, see <https://student.unsw.edu.au/special-consideration>.

Administrative Matters

On issues and procedures regarding such matters as special needs, equity and diversity, occupational health and safety, enrolment, rights, and general expectations of students, please refer to the School and UNSW policies:

<https://student.unsw.edu.au/guide>

<https://www.engineering.unsw.edu.au/electrical-engineering/resources>

Disclaimer

This Course Outline sets out 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 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 (as updated in Moodle), the description in the Course Outline/Moodle applies.

Image Credit

Synergies in Sound 2016

CRICOS

CRICOS Provider Code: 00098G

Acknowledgement of Country

We acknowledge the Bedegal people who are the traditional custodians of the lands on which UNSW Kensington campus is located.

Appendix: Engineers Australia (EA) Professional Engineer Competency Standard

Program Intended Learning Outcomes	
Knowledge and skill base	
PE1.1 Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline	
PE1.2 Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline	
PE1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline	
PE1.4 Discernment of knowledge development and research directions within the engineering discipline	
PE1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline	
PE1.6 Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline	
Engineering application ability	
PE2.1 Application of established engineering methods to complex engineering 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	
Professional and personal attributes	
PE3.1 Ethical conduct and professional accountability	✓
PE3.2 Effective oral and written communication in 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	✓