DESN3000

Strategic Design Innovation

Term 2, 2022

Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Imrana Kabir	i.kabir@unsw.edu.au	Consultations available during usual business hours upon request	Room 505, Level 5, Ainsworth Building J17	Microsoft Teams
Arianna Vignati	a.vignati@unsw.edu.au	Consultations available during usual business hours upon request	Room 505, Level 5, Ainsworth Building J17	Microsoft Teams

Demonstrators

Name	Email	Availability	Location	Phone
Dylan Sanusi-Goh	d.sanusi-goh@unsw.edu.au	During demonstration hours	NA	Microsoft Teams
Leigh Huang	leigh.huang@unsw.edu.au	During demonstration hours	NA	Microsoft Teams
Ian Mui	i.mui@unsw.edu.au	During demonstration hours	NA	Microsoft Teams
Anita Cheah	anita.cheah@unsw.edu.au	During demonstration hours	NA	Microsoft Teams
Thomas Wright	thomas.wright@unsw.edu.au	During demonstration hours	NA	Microsoft Teams
Lauren Wood	lauren.wood1@unsw.edu.au	During demonstration hours	NA	Microsoft Teams
Harry Hall	z5162719@unsw.edu.au	During demonstration hours	NA	Microsoft Teams
Oliver Loewenthal	z5162960@unsw.edu.au	During	NA	Microsoft

Name	Email	Availability	Location	Phone
		demonstration hours		Teams
Ryan Fitzpatrick	ryan.fitzpatrick@unsw.edu.au	During demonstration hours	NA	Microsoft Teams

School Contact Information

Location

UNSW Mechanical and Manufacturing Engineering

Ainsworth building J17, Level 1

Above Coffee on Campus

Hours

9:00–5:00pm, Monday–Friday*

*Closed on public holidays, School scheduled events and University Shutdown

Web

School of Mechanical and Manufacturing Engineering

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)

(+61 2) 9385 4097 – School Office**

**Please note that the School Office will not know when/if your course convenor is on campus or available

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

[School Office](#) – School general office administration enquiries

- NB: the relevant teams listed above must be contacted for all student enquiries. The School will only be able to refer students on to the relevant team if contacted

Important Links

- [Student Wellbeing](#)
- [Urgent Mental Health & Support](#)
- [Equitable Learning Services](#)
- [Faculty Transitional Arrangements for COVID-19](#)
- [Moodle](#)
- [Lab Access](#)
- [Computing Facilities](#)
- [Student Resources](#)
- [Course Outlines](#)
- [Makerspace](#)
- [UNSW Timetable](#)
- [UNSW Handbook](#)

Course Details

Units of Credit 6

Summary of the Course

Over the last three decades design innovation has become strategic: success in design requires a strategy for managing the broader problems of innovation. As design has gained importance, it also has become relevant to a wide array of stakeholders. This has added complexity to the way in which design should be undertaken.

Design is an important instrument of innovation in manufacturing and service industries, as well as in public, semi-public and humanitarian organizations. These environments set many types of requirements for innovation, including price points, brand requirements, competition, technological and brand legacies, government regulations, and ethics. They almost always require an analysis of the ethical environment, which is often but not always coded into professional rules and regulations.

These environments are usually ambiguous, dynamic and reactive, and designers cannot control them. To innovate in these environments, designers need strategies for identifying and managing these contextual requirements.

DESN3000 teaches you skills in strategic design innovation. These include: skills for capturing the boundary conditions that create conditions for innovation; skills for creating design concepts that provide a fit to the strategic environment; skills for creating innovation strategies that help them to innovate in with multiple stakeholders who often have conflicting values and shifting interests; skills for identifying ethical problems involved in design decisions; and skills for managing teams and projects in strategic context.

Course Aims

DESN3000: Strategic Design Innovation gives students skills to manage and communicate design processes in the context of business and ethical drivers they cannot control. The students will learn: strategic design skills; business and ethical skills; management and communication skills in multifaculty environment.

Course Learning Outcomes

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

Learning Outcome	EA Stage 1 Competencies
1. Employ strategic design skills to create design concepts in ambiguous business and social deployment contexts.	PE2.3, PE2.4, PE3.4, PE3.5, PE3.6
2. Analyse and identify ethical, business, regulatory and social constraints needed to develop a detailed design specification and a business plan that supports its goals.	PE1.5, PE1.6, PE3.1, PE3.4, PE3.5
3. Employ strategies to identify and examine ethical problems in design and to engage in a respectful and inclusive dialogue to formulate a consistent, coherent response to these problems by	PE2.4, PE3.1, PE3.2, PE3.3, PE3.4, PE3.5, PE3.6

Learning Outcome	EA Stage 1 Competencies
applying codes of ethical conduct and ethical decision models.	
4. Develop management techniques and leadership strategies for working within multidisciplinary teams with a variety of skills and objectives.	PE1.4, PE1.5, PE1.6, PE3.1, PE3.3, PE3.4, PE3.5, PE3.6
5. Communicate complex concepts for business, engineering and design viewpoints in key presentation formats: oral, textual, and electronic.	PE3.2, PE3.4, PE3.5, PE3.6

Teaching Strategies

This course is an exercise in experiential learning. The primary teaching vehicle of the course is a design project in which students learn to apply scientific, engineering, business, and human factors knowledge to an open-ended design problem. They learn collaboration, management and communication techniques that support the design task. One important component of the course is an ethical stream in which students learn to identify and describe ethical problems in their design task, and create solutions for these problems.

Students will complete both individual and group work.

Class materials can be accessed online. These materials include the project brief, lecture recordings, lecture slides, assessment guides, workshop materials and any additional resources.

The rationale for the experiential learning strategy is the practical and collaborative nature of design.

Additional Course Information

Each week, students are expected to meet independently with their team. Arranging these regular meeting should be one of your first actions after teams are formed.

The normal workload expectations of a student are approximately 25 hours per term for each UOC, including class contact hours, other learning activities, preparation and time spent on all assessable work.

Assessment

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Business proposal	20%	Week 3, Thursday 5:00 pm (June 16)	1, 2, 5
2. Ethics report	25%	Week 5, Sunday 5:00 pm (July 3)	3, 5
3. Business pitch 👥	25%	Week 8, Sunday 5:00 pm (July 24)	2, 4, 5
4. Business plan	30%	Week 10, Sunday 5:00 pm (August 7)	1, 2, 3, 4, 5

Assessment 1: Business proposal

Assessment length: 3 minutes
Submission notes: Moodle
Due date: Week 3, Thursday 5:00 pm (June 16)

Present a business proposal that involves some kind of engineering product and or service. Students individually submit a short video recording of the presentation to Moodle. See the project brief and assessment guide for further details

This is not a Turnitin assignment

Assessment 2: Ethics report

Assessment length: 2000 words
Due date: Week 5, Sunday 5:00 pm (July 3)

Write a report on an engineering ethical dilemma. Students may choose a topic from a list, or have their own topic pre-approved by their demonstrator before submission. Students individually submit the report to Moodle. See the assessment guide for further details.

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

Assessment 3: Business pitch (Group)

Assessment length: 10 minutes
Submission notes: Moodle
Due date: Week 8, Sunday 5:00 pm (July 24)

Present a business proposal that involves some kind of engineering product and or service. A member from each student team will submit a recording of the video presentation to Moodle. Marks and feedback

from the task will be returned within 1-week, to allow teams to implement the feedback in their Business Plan assessment task. See the project brief and assessment guide for further details.

Assessment 4: Business plan

Assessment length: 30 pages
Due date: Week 10, Sunday 5:00 pm (August 7)

Students write a business plan that covers design, business and ethical aspects of their project. The plan will require empirical evidence to back up the argumentation regarding business, including target market analysis, product strategy, social and ethical constraints, and finance. Team evaluation is used to ensure equitable participation of members. Students complete a questionnaire, quantifying the relative contribution of team members. Qualitative comments provide a cross-reference for conflicting cases. A member from each student team will submit the report document to Moodle.

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

Attendance Requirements

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

Course Schedule

[View class timetable](#)

Timetable

Date	Type	Content
Week 1: 30 May - 3 June	Lecture	**Course introduction** *Imrana Kabir (DESN3000 Convenor)* *Arianna Vignati (DESN3000 Convenor)*
	Lecture	**Engineering design case study** *Helmut Mayer (Director of Design Performance)*
	Workshop	**Pitching and Networking**
Week 2: 6 June - 10 June	Lecture	**Engineering Business Planning** *Bernard Hayes (Experienced engineering professional)*
	Workshop	**Engineering Organisations and Lean Canvas**
Week 3: 13 June - 17 June	Lecture	**Ethical theory and being an autonomous professional** *Stephen Cohen (Research expert in the field of ethics)*
	Workshop	**Team formation**
Week 4: 20 June - 24 June	Lecture	**Introduction to Engineering Ethics** *Iain Skinner (Convenor of Strategic Leadership and Ethics at UNSW)*
	Lecture	**Ethics, worldviews and informed consent** *Rita Henderson (Associate Dean Equi&Diversity at UNSW)*
	Workshop	**Ethics in Design and Engineering**
Week 5: 27 June - 1 July	Lecture	**Contract law for engineers** *Lucy Hancock (Senior Associate at Mills Oakley)*
	Lecture	**Misleading and deceptive conduct**

		Lucy Hancock (Senior Associate at Mills Oakley)
	Workshop	**Diversity and biases**
Week 7: 11 July - 15 July	Lecture	**Entrepreneurship Panel**
	Lecture	**Student Industry, Research, and Design Experience Panel**
	Workshop	**Project work**
Week 8: 18 July - 22 July	Lecture	**Resume, cover letter, and interviews** *Career Development Consultant at UNSW*
	Lecture	**Engineering business and design case study** *Jason Held (CEO of Saber Astronautics)*
	Workshop	**Project work**
Week 9: 25 July - 29 July	Lecture	**Teamwork** *Paul Grainger (National Professional Development Manager at Professionals Australia)*
	Lecture	**Writing Skills and Communication** *Paul Grainger (National Professional Development Manager at Professionals Australia)*
	Workshop	**Project work**
Week 10: 1 August - 5 August	Lecture	**Negotiations** *Paul Grainger (National Professional Development Manager at Professionals Australia)*
	Lecture	**Networking** *Paul Grainger (National Professional Development Manager at Professionals Australia)*
	Workshop	**Project work**

Resources

Recommended Resources

- UNSW Library website: https://www.library.unsw.edu.au/
- Microsoft Teams: https://teams.microsoft.com
- Moodle: https://moodle.telt.unsw.edu.au/course/view.php?id=59791

Course Evaluation and Development

Feedback - Feedback on the course is gathered periodically using various means, including the UNSW myExperience process, informal discussion in the final class for the course, and the School's Student/Staff meetings. Your feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback. In this course, recent improvements resulting from student feedback include the streamlining of assessments, implementation of more detailed workshop activities and retention of the thesis, industrial training and job skill lectures.

Microsoft Forms - Throughout the term please email the convenors if you have any feedback or concerns. Whether it's good or bad we want to know. We're eager to act on your advice throughout the term, instead of waiting till myExperience at the end. You may complete the form as many times as you like and all questions are optional.

MechSoc - You can also provide feedback to MechSoc who will raise your concerns at student focus group meetings. As a result of previous feedback obtained for this course and in our efforts to provide a rich and meaningful learning experience, we have continued to evaluate and modify our delivery and assessment methods including updated lecture notes, workshops, blended learning resources, in-class demonstrations, and industry guest lectures.

Laboratory Workshop Information

Workshops will be conducted on campus or online depending on your mode of enrollment. Please ensure that you are in the right workshop that fits your availability. For on-campus workshops, on-campus attendance is expected. See also the on-campus class attendance section further below for general information on public health issues and enrollment changes.

Submission of Assessment Tasks

Assessment submission and marking criteria

Should the course have any non-electronic assessment submission, these should have a standard School cover sheet.

All submissions are expected to be neat and clearly set out. Your results are the pinnacle of all your hard work and should be treated with due respect. Presenting results clearly gives the marker the best chance of understanding your method; even if the numerical results are incorrect.

Marking guidelines for assignment submissions will be provided at the same time as assignment details to assist with meeting assessable requirements. Submissions will be marked according to the marking guidelines provided.

Late policy

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 example:

- Your course has an assessment task worth a total of 100 marks.
- You submit the assessment 2 days (or part thereof) late (i.e. from 24-48 hours after the deadline).
- The submission is graded and awarded a mark of 65/100.
- A late penalty of 10 marks is deducted from your awarded mark (2 days @ 5% of 100 marks).
- Your adjusted final score is 55/100.

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

1. Weekly online tests or laboratory work worth a small proportion of the subject mark, or
2. Online quizzes where answers are released to students on completion, or
3. Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date, or
4. Pass/Fail assessment tasks.

Examinations

You must be available for all quizzes, tests and examinations. For courses that have final examinations,

these are held during the University examination periods: February for Summer Term, May for T1, August for T2, and November/December for T3.

Please visit myUNSW for Provisional Examination timetable publish dates. For further information on exams, please see the [Exams](#) webpage.

Special Consideration

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 submitting an assessment or sitting an exam.

UNSW now has a [Fit to Sit / Submit rule](#), which means that if you attempt an exam or submit a piece of assessment, 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](#).

Please note that students will **not** be required to provide **any** documentary evidence to support absences from any classes missed **because of COVID-19 public health measures such as isolation**. UNSW will **not** be insisting on medical certificates from anyone deemed to be a positive case, or when they have recovered. Such certificates are difficult to obtain and put an unnecessary strain on students and medical staff.

Applications for special consideration **will** be required for assessment and participation absences – but no documentary evidence **for COVID-19 illness or isolation** will be required.

Special Consideration Outcomes

Assessments have default Special Consideration outcomes. The default outcome for the assessment will be advised when you apply for Special Consideration. Below is the list of possible outcomes:

Outcome	Explanation	Example
Time extension	Student provided more time to submit the assessment	e.g. 1 more week of time granted to submit a report
Supplementary assessment	Student provided an alternate assessment at a later date/time	e.g. a supplementary exam is scheduled during the supplementary exam period of the term
Substitute item	The mark for the missed assessment is substituted with the mark of another assessment	e.g. mark for Quiz 1 applied also applied as mark for Quiz 2, meaning if a student achieved a mark of 20/30 for Quiz 1 and was granted Special Consideration for Quiz 2, a mark of 20/30 would be applied for Quiz 2, etc
Exemption	All course marks are recalculated excluding this assessment and its weighting	e.g. The course has an assessment structure of: - Assignments 30%, - Lab report 30%, - Final Exam 40%. If the Lab report is missed and student is granted Special Consideration, then the assessment structure may be reweighted as follows: - Assignments 50% - Final Exam 50% as though the Lab report did not exist
Non-standard	Course Coordinator is contacted for the outcome when special consideration is granted as the outcome differs on a case-by-case basis	e.g. typical for group assessments where time extension supplementary assessment could be granted to the group member, time extension could be granted to the whole group, etc. Clarify with your Course Convenor for

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.

If plagiarism is found in your work when you are in first year, your lecturer will offer you assistance to improve your academic skills. They may ask you to look at some online resources, attend the Learning Centre, or sometimes resubmit your work with the problem fixed. However more serious instances in first year, such as stealing another student's work or paying someone to do your work, may be investigated under the Student Misconduct Procedures.

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) even suspension from the university. The Student Misconduct Procedures are available here:

www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Academic Information

Credit points

Course credit is calculated in Units-Of-Credit (UOC). The normal workload expectation for one UOC is approximately 25 hours per term. This includes class contact hours, private study, other learning activities, preparation and time spent on all assessable work.

Most coursework courses at UNSW are 6 UOC and involve an estimated 150 hours to complete, for both regular and intensive terms. Each course includes a prescribed number of hours per week (h/w) of scheduled face-to-face and/or online contact. Any additional time beyond the prescribed contact hours should be spent in making sure that you understand the lecture material, completing the set assignments, further reading, and revising for any examinations.

On-campus class attendance

T2-2022 UPDATE
- -

Public distancing conditions must be followed for all face-to-face classes. To ensure this, only students enrolled in those classes will be allowed in the room. No over-enrolment is allowed in face-to-face classes. Students enrolled in online classes can swap their enrolment from online to on-campus classes by Sunday, Week 1. Please refer to your course's Microsoft Teams and Moodle sites for more information about class attendance for in-person and online class sections/activities.

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. Further information is available on any course Moodle or Teams site.

In certain classroom and laboratory situations where physical distancing cannot be maintained or there is a high risk that it cannot be maintained, face masks will be considered **mandatory PPE** for students and staff.

For more information, please refer to the
FAQs: https://www.covid-19.unsw.edu.au/safe-return-campus-faqs

Guidelines

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](#)

Note: 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

Unsplash,2020

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	✓