



School of Civil and Environmental Engineering

Term 1, 2020

ENGG1000 Engineering Design And Innovation

CIVIL AND ENVIRONMENTAL ENGINEERING PROJECTS

COURSE DETAILS

Units of Credit	6		
Lectures/Teamwork	Monday	1400 to 1500 / 1500 to 1600 hrs	
	Thursday	1400 to 1500 / 1500 to 1600 hrs	
Eng. Faculty Lectures	Monday	All students (weeks 1& 2 only)	Clancy Aud./CLB7
CivEng Common Lectures	Monday	All CVEN Projects (weeks 7 – 9)	Law Theatre
	Thursday	All CVEN Projects (weeks 2 – 9, excl. 6)	Clancy Auditorium
CivEng Project Lectures (weeks 3 – 5)	Monday	Project 01 – Shock Resistant Buildings Project 02 – Sustainable Water in Walgett Project 03 – Surfing the Ocean Energy Wave Project 04 – Mapping with Drones	Law Theatre OMB 229 Valentine Annexe 121 Col. LG02
Teamwork/Discussion Group Rooms	Following group formation on Thursday of week 2, Project Teamwork rooms each Monday afternoon (commencing in week 3) will be allocated. Sustainable Design Discussion Group rooms will be allocated by the Lecturer during the first lecture on Thursday of Week 4		

School Coordinator:

Professor Ian Turner
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assisted by (first point of contact):

Dr Mitchell Harley
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Project Coordinators:

Project 1: Shock Resistant Buildings

Dr. Daniel O'Shea
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Project 2: Sustainable Water in Walgett

Assoc. Professor Lucy Marshall
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Project 3: Surfing the Ocean Energy Wave

Professor Ian Turner
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Project 4: Mapping with Drones

Professor Nancy Glenn
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Computer Aided Design (CAD)

Dr Neeraj Saxena
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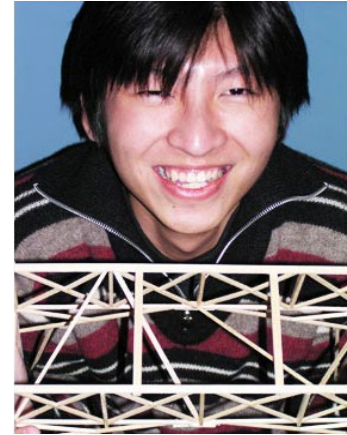
Sustainable Design

Dr Bojan Tamburic
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INFORMATION ABOUT THE COURSE

This course is an entry point into the disciplines of engineering for students in their first year at UNSW. The course has an emphasis on design and communications and is intended to provide UNSW engineering students with an engaging “first year experience” while facilitating peer networking and developing their interest in the field of engineering.

In the Civil and Environmental Engineering programmes, in addition to a major project planned to absorb participants into the real world of design, students will expand their minds in issues such as how to design a sustainable future while placing into context the role of engineers in the society of tomorrow. The course has a strong focus on communication skills, the role of engineers in the community and issues such as context and responsibility of engineers in modern society are explored.



Within the structure of the ENGG100 (Figure 1) the School of Civil and Environmental Engineering will be organising the following 4 projects:

- Project 1: Heavy Civil Engineering (Shock Resistant Buildings)
- Project 2: Humanitarian Engineering (Sustainable Water in Walgett)
- Project 3: Civil-Environmental Infrastructure (Surfing the Ocean Energy Wave)
- Project 4: Engineering Surveying (Mapping with Drones)

Each project is designed to develop your insight into just some of the many faces of Civil and Environmental Engineering. See the project outlines for details of each project.

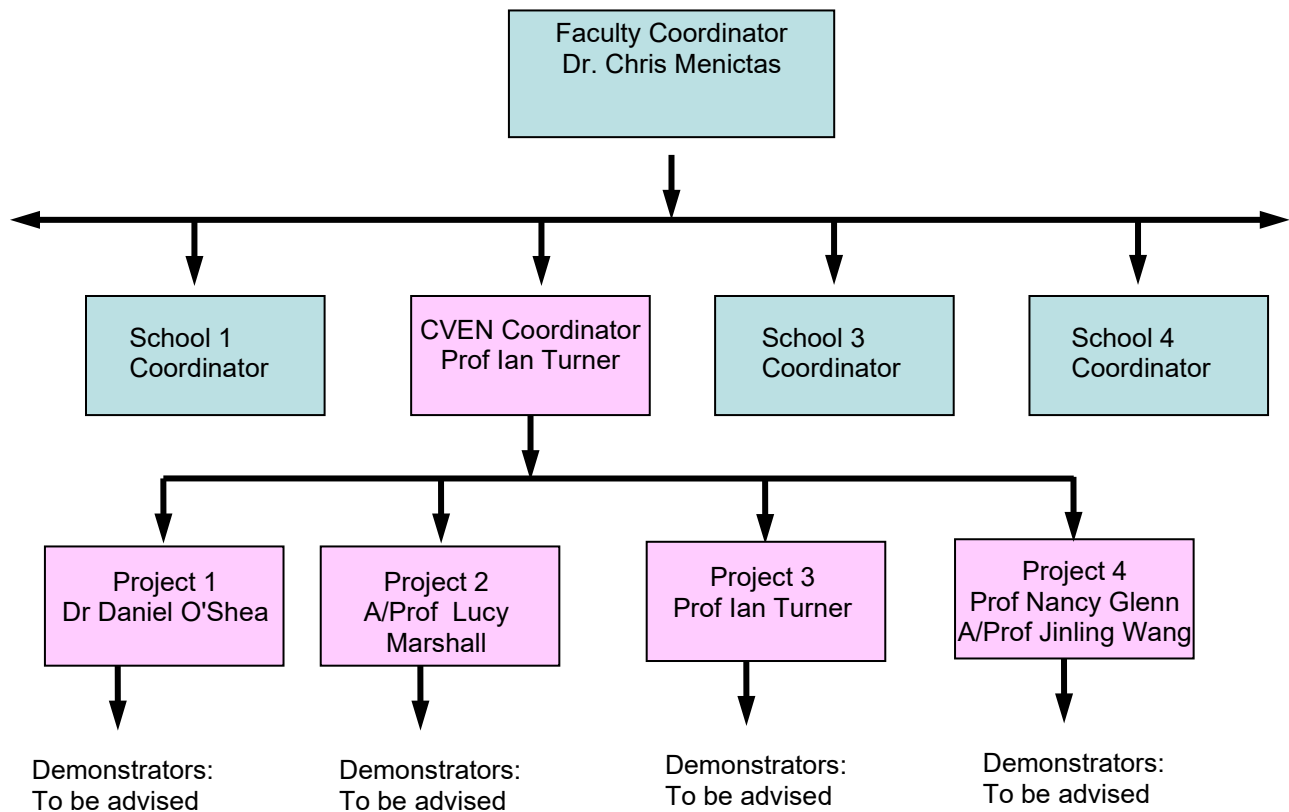


Figure 1. Relationship between Faculty, School and Project Coordinators.

TEACHING STRATEGIES

Teaching consists of a series of integrated lectures and teamwork/discussion groups designed to introduce you to the engineering profession, in general, and civil and environmental engineering, in particular, through the study of engineering projects; to give context to the meanings of Civil and Environmental Engineering, the role and practices of Engineers in the profession and their professional responsibilities; to develop communications skills including technical report writing, technical drawing and teamwork. Key lectures are given on the role and responsibility of engineers to the community including progress towards a sustainable future.

A series of integrated lectures (Figure 2) are given to provide you with the base skills needed to show excellence in design and broaden your thinking towards design for a sustainable future (a key issue identified by the Institution of Engineers, Australia, in the training of young engineers).

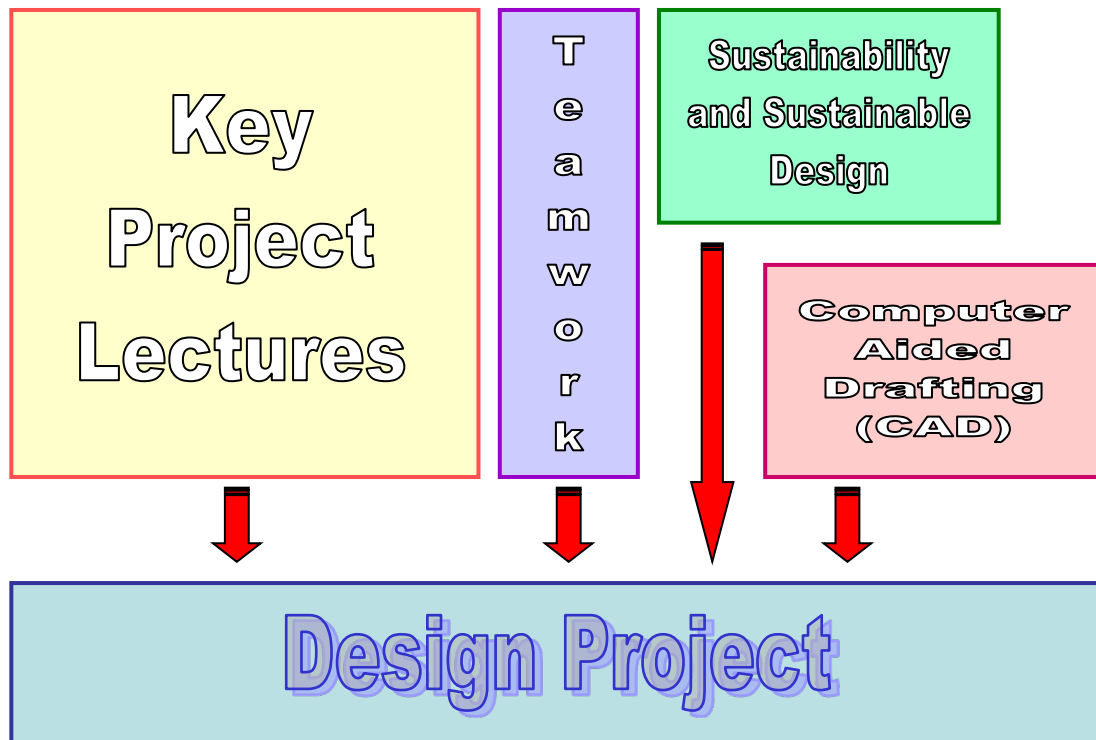


Figure 2 – Relationship between Lecture Content and Design Project

EXPECTED LEARNING OUTCOMES

The expected learning outcomes are as follows:

- Development of problem solving skills for creative and innovative solutions to open ended problems
- The development of research skills including library research
- Communication skills in technical report writing and engineering drawing skills.
- The development of teamwork and project management skills.
- An understanding the principles of ecologically sustainable development and their application to energy, water and infrastructure.

For each hour of contact it is expected that a student will put in at least 1.5 hours of private study.

COURSE PROGRAMME & ASSESSMENT

Course lectures are divided into a series of common and project based lectures mapped around the core learning outcomes. The subject assessment consists of individual and team components to enable the development and assessment of team skills.

A series of common lectures are scheduled that relate to all projects of the course with a series of lectures directed towards each of the project themes: Heavy Civil Engineering, Environmental Engineering (Sustainability and Engineering for Developing Regions), Civil-Environmental Infrastructure and Geospatial Engineering. The course structure and assessment timetable is given in Table 1.

Problem solving and communication skills are essential for your success as an Engineer. The assessment of this subject is therefore weighted towards problem solving skills in design and communication skills (in all forms, eg, CAD, spoken, written, calculations, etc).

You will also take part in the assessment of your peers' (other project team members) contributions to group work. This will be conducted twice during the Term using the Moodle Peer Assessment questionnaire. The School Coordinator reserves the right to use this to scale the Final Report marks for individual students.

Table 1 – Course programme and assessment timetable.

Week	Monday 2 – 3pm	Team sessions 3 – 4pm	Thursday 2 – 3pm	Team sessions 3 – 4pm
1	Faculty: Introduction, Project Briefings, OH&S		Faculty: Impromptu Design (quick and fun design task)	
2	Review of Impromptu Design, Project Selection Briefing	Design exercise 5% (individual)	Introduction to CVEN Projects: Project Group formation	
3	Project Lecture 1	Project Teamwork 1	Teamwork/meetings Technical Report Writing	
4	Project Lecture 2	Project Teamwork 2 Project appraisal 5% (group/individual)	Sustainability Lecture 1	Discussion Groups
5	Project Lecture 3	Project Teamwork 3 Concept design exercise 5% (group)	Sustainability Lecture 2	Discussion Groups 2.5% Online Quiz (individual)
PROJECT WEEK – SELF DIRECTED				
7	Engineering drawing and CAD 1	Project Teamwork 4 Draft report due 10% (group)	Sustainability Lecture 3	Discussion Groups
8	Engineering drawing and CAD 2	Project Teamwork 5	Sustainability Lecture 4	Discussion Groups 2.5% Online Quiz (individual)
9	PUBLIC HOLIDAY (EASTER MONDAY)		Sustainability Lecture 5	Discussion Groups 10% Assessment task (individual)
10	Engineering drawing and CAD 3	Project Teamwork 6	SELF-DIRECTED PROJECT WORK 10% Online CAD Assessment (Individual)	
11	PROJECT TESTING Testing 15% (Group) Project Report due 35% (Group)			

Note: Faculty common, green: School common, brown: Project specific, blue.