

# CVEN9888 ENVIRONMENTAL MANAGEMENT

## COURSE DETAILS

<b>Units of Credit</b>	6
<b>Contact hours</b>	4 hours per week
<b>Class</b>	Wednesdays, 14:00 – 16:00      online
<b>Workshop</b>	Wednesdays, 16:00 – 18:00      online

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## INFORMATION ABOUT THE COURSE

There are no pre-requisites for this course. It is a required course in the specialisation Environmental Engineering for the coursework masters degrees of MEngSc (8338), listed under the course group "Advanced Specialisation Disciplinary Knowledge". It is recommended that it is taken as one of the Year 2 Environmental Engineering courses in the ME (Environmental Engineering CVENLT8621) program.

The course is compatible with, and complementary to other environmental engineering courses such as CVEN9892 Sustainability Assessment.

## HANDBOOK DESCRIPTION

Spectrum of modern environmentalism and sustainable development; environmental impact statement techniques and environmental impact assessment procedures; environmental management systems; tools for the analysis and management of environmental impacts of engineering projects, including environmental risk assessment, Life Cycle Assessment and other materials accounting techniques.

See link to virtual handbook:

<https://www.handbook.unsw.edu.au/postgraduate/courses/2020/CVEN9888/>

## OBJECTIVES

Provide an introduction to Ecologically Sustainable Development (ESD) principles and investigate how ESD is operationalised through the use of tools such as Life Cycle Assessment, Ecological Footprint and Material Flux Analysis. Provide details of frameworks such as Environmental Impact Assessments (EIA) and Environmental Management Systems (EMS) and how they are applied in the context of new projects, corporations and regions.

List of course attributes:

- An in-depth engagement with the relevant disciplinary knowledge in its inter-disciplinary context
- Capacity for analytical and critical thinking and for creative problem solving
- Ability to engage independent and reflective learning
- Skills for collaborative, multi-disciplinary work and effective communication

## TEACHING STRATEGIES

The teaching strategies for both internal and distance version of this course is one session, 4 hours per week; nominally 2 hours lectures and 2 hours workshops. The subject lecturer anticipates that students will need to spend on average 10 hours per week in total to gain a satisfactory understanding of the course.

Students should use the approach that best suit them. In general, the lecturers suggest attending the online lectures and workshops. Students should have the .ppt slides open in “Notes Page” View on their laptop/iPad etc.; write in notes in the lower section as the content is described, as there will be many diagrams and tables without any supporting text – students should add this in from the lecturer’s commentary. If students did not understand a section of the lecture, then go to the lecture/ workshop recording and review this component. Then, go to the Guided Learning Unit for the module/week and the associated readings and selectively read through them to cover the material students did not understand, or to complement what has been provided in the lecture.

<b>Private Study</b>	<ul style="list-style-type: none"><li>• Review lecture materials and readings provided in Moodle</li><li>• Do problems set in lectures and workshops</li><li>• Participate in Moodle discussions of problems</li><li>• Reflect on feedback from class problems and assignments</li><li>• Keep up with notices and find out marks via Moodle</li></ul>
<b>Lectures</b>	<ul style="list-style-type: none"><li>• Find out what you must learn</li><li>• Follow worked examples</li><li>• Hear announcements on course changes</li></ul>
<b>Workshops</b>	<ul style="list-style-type: none"><li>• Practice solving set problems</li><li>• Ask questions</li></ul>
<b>Assessments</b>	<ul style="list-style-type: none"><li>• Demonstrate your knowledge and skills</li><li>• Demonstrate higher understanding and problem solving</li></ul>

## EXPECTED LEARNING OUTCOMES

***This course is designed to address the learning outcomes below and the corresponding Engineers Australia Stage 1 Competency Standards for Professional Engineers as shown. The full list of Stage 1 Competency Standards may be found in Appendix A.***

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

Learning Outcome		EA Stage 1 Competencies
1.	<i>Provide a definition of Environmental Management from a material perspective and identify sources of information which can be used to evaluate the progress towards Ecologically Sustainable Development.</i>	PE1.1, PE1.6, PE2.2, PE3.4, PE3.6
2.	<i>Apply environmental material accounting tools successfully and quantify the environmental impacts of the issue at hand depending on the context.</i>	PE1.1, PE1.6, PE2.2, PE3.4
3.	<i>Describe the components of an Environmental Impact Assessment (EIS) for a new project, and an Environmental Management System (EMS) for an operating facility and how these lead to the content of an annual Public Environmental Report.</i>	PE1.1, PE1.6, PE2.2, PE3.4

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

### COURSE PROGRAM

A table of lectures and workshops for each week, indicating the name of lecturer involved (where multiple lecturers teaching in course), and assignment submission dates for the course.

#### Term 2 2020

Week	Date	2h Lecture and 2h Workshop Wednesdays, 14:00-18:00 Online Delivery	Assessments Due
Week 1	03/06/2020	Subject overview, introduction to ESD, Circular economy (Soo Huey Teh)	
Week 2	10/06/2020	Carbon Footprints & Assignment Brief (Soo Huey Teh)	
Week 3	17/06/2020	Life Cycle Assessment (Soo Huey Teh)	<b>Quiz 1 due (on W1 &amp; W2 topics)</b>
Week 4	24/06/2020	Ecological Footprints (Ademir Abdala Prata Junior)	
Week 5	01/07/2020	National Material Accounts (Ademir Abdala Prata Junior)	<b>Quiz 2 due (on W3 &amp; W4 topics)</b>
Week 6	08/07/2020	<b>Non-teaching week No Lecture and Workshop</b>	<b>CF Assignment due on Friday, 10 July 2020, 8pm</b>
Week 7	15/07/2020	Material Flux Analysis (Denis M. O'Carroll)	

Week 8	22/07/2020	Material Inputs per Unit Service (MIPS) (Denis M. O'Carroll)	<b>Quiz 3 due (on W5 &amp; W7 topics)</b>
Week 9	29/07/2020	Environmental Impact Statements (Denis M. O'Carroll)	
Week 10	05/08/2020	Environmental Management Systems and Reports (Denis M. O'Carroll)	<b>Quiz 4 due (on W8 &amp; W9 topics)</b>
Week 11-13	14/08/2020- 27/08/2020	Final Examination	<b>Final Examination due (date to be announced)</b>

<b>ASSESSMENT</b>
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*Students will undertake a variety of individual and group assessment components that are associated with course objectives. Details of each assessment component, the marks assigned to it, and the dates of submission are set out below in "Assessment Overview" below.*

*The final grade for this course will be based on the sum of the scores from each of the assessment tasks. The Final Examination is worth 50% of the Final Mark if class work is included and 100% if class work is not included. The class work is worth 50% of the Final Mark if included. A mark of at least 40% in the final examination is required before the class work (hand-in quizzes and online tasks) is included in the final mark. The formal exam scripts will not be returned.*

*Students who perform poorly in the quick quizzes and workshops are recommended to discuss progress with the lecturer during the term.*

*Note: The course coordinator and lecturer reserve the right to adjust the final scores by scaling if agreed by the Head of School.*

### **Online Quizzes**

Students will be expected to demonstrate an understanding of the main principles of the weekly content of the course that underpin decision making.

### **Assignment 1**

Assignment 1 is a GROUP assignment where carbon footprint is undertaken on a real-world example and summarised in a group report. The aim is to demonstrate an understanding of environmental sustainability and carbon footprint methodology, the capacity for analytical and critical thinking and for creative problem solving and skills for collaborative and multi-disciplinary work. The assessment criteria refer to the ability to apply and integrate carbon footprints in various contexts, critical analysis of relevant concepts/ theories/ literatures and of own ideas, assumptions and explanations, results, conclusions, summary and the overall report quality. The contributions of individual students are assessed separately in this group assignment; students will receive individual marks.

Students must actively project-manage their assignment work in order to gain a good mark in the major assignments. Students should expect to spend a significant amount of time working with their team (where applicable) to develop their work. Note that the Turnitin will be able to detect similarities between assignments. The assignments and the exam will test the students' ability to synthesise the overall course.

## Online Final Examination

The final exam will be a 2-hour open book online exam during the normal exam period. The final examination is compulsory. All material presented, discussed and worked through during the lectures and workshops will be examinable in the final exam unless otherwise noted. The questions will generally be similar to the questions in the Guided Learning Unit Exercises. There are no previous exam papers available.

The Exam date is set by Exams Branch, and is confirmed in around Week 8-10 of the session. You can access the time and date of the exam via your MyUNSW. All information regarding internal courses and their exam policy can be found here: <https://student.unsw.edu.au/exams>

Supplementary Examinations for Term 2 2020 will be held on Monday 7<sup>th</sup> September – Friday 11<sup>th</sup> September (inclusive) should you be required to sit one. You are required to be available during these dates. Please do not to make any personal or travel arrangements during this period.

### PENALTIES

*Late work will be penalised at the rate of **10%** per day after the due time and date have expired. All dates and deadlines of lectures, workshops and assessments are provided in **Australian Eastern Standard Time, AEST**. You must make yourself available at the time advised for the online assessments at the scheduled Australian Eastern Standard Time, AEST.*

*Students who are unwell or have exceptional circumstances beyond their control that prevent them from taking quizzes or submitting assignments can apply for special consideration, noting that this application will be assessed independently based on your circumstance and supporting evidence provided.*

*Special consideration forms are at:*

<https://student.unsw.edu.au/special-consideration>

**ASSESSMENT OVERVIEW**

Item	Length	Weighting	Learning outcomes assessed	Assessment Criteria <i>(this needs to explicitly describe what students are expected to demonstrate in the task)</i>	Due date and submission requirements	Deadline for absolute fail	Marks returned
Carbon Footprint Assignment (Group)	Check Assignment Brief on Moodle	30%	LO1, LO2	<p>The marking guide for this assignment includes the following criteria:</p> <ul style="list-style-type: none"> <li>• Thorough and in-depth understanding of Carbon Footprint concepts demonstrated by the ability to apply and integrate them in various contexts.</li> <li>• A comprehensive and critical analysis of relevant concepts/theories/literature and of own ideas, as well as clear positioning/argument.</li> <li>• Overall context, clarity and quality.</li> </ul>	Friday, 10 July 2020, 8pm	1 week after submission deadline	2 weeks after submission deadline
Online Quizzes (Individual)	10 min	20%	LO1, LO2, LO3	Fortnightly online quizzes will test the students' ability to synthesise weekly content of the course, demonstrate understanding of main principles and implement them in given situations. They may include calculations.	See course program	Same day	After quiz is submitted
Final Exam (Individual)	2 hours	50%	LO1, LO2, LO3	The exam will test the students' ability to synthesise the overall course. All material presented during the course will be examinable in the exam unless otherwise noted.	Final exam period	Date of exam	1 week after submission

## RELEVANT RESOURCES

- There is no textbook for this course.
- All teaching materials are provided on Moodle.

### Referencing your work

Use the how to guide <https://student.unsw.edu.au/support-referencing-assignments>

### Tips for online success

A guide for students with IT tips and tricks is available to ensure the best online learning experience possible – especially for students who are accessing classes and materials while based overseas. We encourage any student who is having difficulties or who is not confident with online learning to read [these tips for online success](#) or visit the IT website for further support on [studying remotely](#).

## DATES TO NOTE

Refer to MyUNSW for Important Dates available at:

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

## PLAGIARISM

Beware! An assignment that includes plagiarised material will receive a 0% Fail, and students who plagiarise may fail the course. Students who plagiarise are also liable to disciplinary action, including exclusion from enrolment.

Plagiarism is the use of another person's work or ideas as if they were your own. When it is necessary or desirable to use other people's material you should adequately acknowledge whose words or ideas they are and where you found them (giving the complete reference details, including page number(s)). The Learning Centre provides further information on what constitutes Plagiarism at:

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

## ACADEMIC ADVICE

For information about:

- Notes on assessments and plagiarism;
- Special Considerations: [student.unsw.edu.au/special-consideration](https://student.unsw.edu.au/special-consideration);
- General and Program-specific questions: [The Nucleus: Student Hub](#)
- Year Managers and Grievance Officer of Teaching and Learning Committee, and
- CEVSOC/SURV/SOC/CEPCA

Refer to Academic Advice on the School website available at:

<https://www.engineering.unsw.edu.au/civil-engineering/student-resources/policies-procedures-and-forms/academic-advice>

## Appendix A: Engineers Australia (EA) Competencies

### Stage 1 Competencies for Professional Engineers

	<b>Program Intended Learning Outcomes</b>
<b>PE1: Knowledge and Skill Base</b>	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
<b>PE2: Engineering Application Ability</b>	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
<b>PE3: Professional and Personal Attributes</b>	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