COURSE DETAILS

Units of Credit	**6**	
Contact hours	~4 hours per week	
Class	Wednesday, 9:00 – 11:00	online
Workshop	Wednesday, 11:00 – 13:00	online

Course Coordinator and Lecturer

Dr Ademir Prata
email: ademir@unsw.edu.au
office: Room 137, Water Research Centre, Level 1, Vallentine Annexe (H22)

Lecturer

Dr Soo Huey Teh
email: soohuey.teh@unsw.edu.au
office: Room 135, Water Research Centre, Level 1, Vallentine Annexe (H22)

INFORMATION ABOUT THE COURSE

This course provides an introduction to principles of Ecologically Sustainable Development (ESD) and their social, economic and political context. It introduces methods, techniques and tools used by regional and corporate environmental managers to implement ESD principles in organisations and regions.

These methods and tools include a range of environmental assessment techniques that can be applied at a product level (Life Cycle Assessment, Material Inputs per unit Service), at a corporate and regional level (Materials Flow Analysis) and at a regional and national level (Environmental Footprint and Input-Output Analysis). The social, economic and political constraints on use of information from these tools to develop improved environmental management at different economic scales will be addressed through case studies and assignment projects.

The course will introduce principles and methods of Industrial Ecology (IE) and the preparation of Environmental Impact Statements (EIS), Environmental Management Systems (EMS) and Environmental Reports (ER).

Note: CVEN1702, CVEN9892 and CVEN9888 are excluded courses for CVEN4705

HANDBOOK DESCRIPTION

See link to virtual handbook -

OBJECTIVES

To introduce students to principles of Ecologically Sustainable Development (ESD) and the contexts in which they have arisen and in which they are implemented. To develop students' understanding of the various methods and techniques (analytical tools) of Industrial Ecology used by regional and corporate environmental managers to implement ESD principles in organisations and regions. To expose students to the practice of real-world sustainability projects and initiatives in the region.

List of programme 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 in independent and reflective learning
- Information literacy
- Skills for collaborative and multi-disciplinary work
- A respect for ethical practice and social responsibility
- Skills for effective communication

TEACHING STRATEGIES

The following teaching strategies will b.15 0.5 Tm0 gued so ite (ci)-21(o)6(m)8(mu-16(a)6(ts Tm.)-2(ki)-2t0 g)6(n)6(ts)-21(31

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.	Provide a definition of sustainability; list the principles of Ecologically Sustainable Development (ESD), and describe the context in which they have arisen and in which they are implemented.	*PE1.1, PE1.2; PE1.6*
2	Describe the typical structure and format of an EIS, EMS and Environmental Report.	*PE1.1, PE1.3, PE1.6*
3.	Use provided data to conduct an analysis of simple facilities and systems using material flow analysis, environmental life cycle assessment, environmental input-output and footprint analysis.	*PE2.2, PE1.6*
4.	Evaluate sources of information that can be used in assessing progress towards ecological sustainability and effectively communicate conclusions	*PE1.4, PE1.6, PE3.2*
5.	Work together in interdisciplinary groups to evaluate the environmental sustainability of households, companies and/or projects.	*PE3.6, PE2.2, PE1.6*
6	Assess a problem to know which tool(s) are appropriate in quantitatively understanding it, and describe how information from the application of these tools can be used to improve ecological sustainability outcomes in households, corporations and regions.	*PE1.6, PE1.4, PE2.2*

As well as the scheduled contact hours, students are expected to complete set readings and activities. For each hour of contact it is expected that you will put in at least 2 hours of private study.

ASSESSMENT

This course will be fully assessable by weekly quizzes and two assignments; there is no exam.
Assessment 1 consists of a series of quizzes which are online, open-book and cover the content of the previous weeks' lectures; they may be only multiple choice or a combination of multiple choice and short answer or calculation.
Assessment 2 is a group report where students will conduct an environmental sustainability assessment (using some of the tools learned in the course) to analyse and evaluate their own household's consumption and action changes to be applied to a case study. Students will prepare one group report to be submitted via TurnitIn, where feedback will be provided.
For Assessment 3 students need to prepare an individual presentation on a topic relating to sustainability assessment tools learnt in class. Presentations will be 5 minutes long (and maximum 20 slides). Formative feedback will be provided by peers during class, final submission will be online. Further details can be found on the course Moodle page.

Item	Length	Weighting	Due date	Marks returned	Learning outcomes assessed
Assessment 1	4 x 15 minute quizzes	40%	For weeks when quizzes are scheduled (see Course Program), the quiz opens at 1 pm on Wed and closes at 1 pm on Thu; any open attempts will be automatically submitted when the quiz closes.	After all students have done the quiz (including special consideration cases). Typically, 3-4 days after the quiz is closed	CLO1, CLO2
Assessment 2 (Group) Carbon Footprint Assignment					

RELEVANT RESOURCES

There is no specific textbook set for this subject. Support resources for this course (e.g., class slides, recommended internet websites, scientific papers and other publications) are provided on Moodle.

DATES TO NOTE

Refer to MyUNSW for Important Dates available at: htre pn

Appendix A: Engineers Australia (EA) Competencies

Stage 1 Competencies for Professional Engineers

	Program Intended Learning Outcomes
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