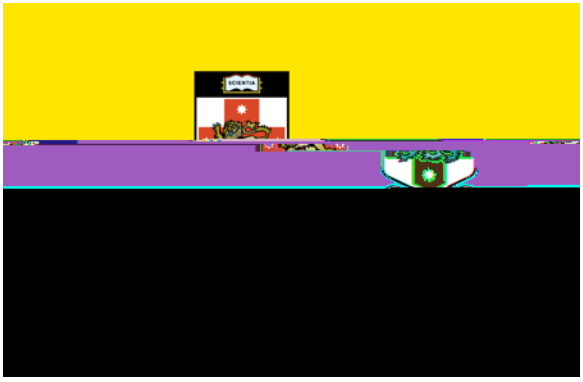

School of Civil and Environmental Engineering

Term3, 2021

CVEN3702 SOLID WASTE AN CONTAMINANT TRANSPORT

COURSE DETAILS

Units of Credit	6	
Contact hours	6 hours per week	
Class	Tuesday, 9:00 – 11:00	Online
	Thursday, 14:00 – 16:00	Online
Workshop	Tuesday, 11:00 – 12:00	Online
	Thursday, 16:00 – 17:00	Online
Course Coordinator and Lecturer	Prof Denis O'Carroll (DOC) email: d.ocarroll@unsw.edu.au	
Demonstrators	Diana Ackerman Grunfeld Email: d.ackermangrunfeld@student.unsw.edu.au	

INFORMATION ABOUT THE COURSE

Courses undertaken prior to CVEN3702 provide support for the content in CVEN3702 in the following areas:

- BIOS1301, CHEM1011, and CVEN2701 provide the biochemistry and chemistry to understand anaerobic digestion of organics in landfills, aerobic treatment of organics in composting, and partitioning of substances through physical, biological and chemical processes used in waste processing facilities.

- CVEN1701 enables students to take the components of waste management systems introduced in

- x CVEN3701 describes the international, national and NSW laws governing waste management; and outlines EISs and EMSs that can be applied to waste facilities.

After completing CVEN3702, the following courses complement and supplement content in CVEN3702:

- x CVEN4701 enable the development of waste management systems at a regional level; components of regional waste systems not included in this course, may be covered here.
- x CVEN9881 extends the course into the area of hazardous waste management; it is generally offered in alternate years.

HANDBOOK DESCRIPTION

An introduction to waste management systems, from generation to treatment and disposal; may include waste characterisation, waste minimisation, transfer stations, recycling facilities, composting waste to energy and landfill waste disposal. Contamination of receiving environments from poor waste disposal, including pollutant sources, spreading of contaminants in air and water, transport processes in the environment.

Link to virtual handbook:

https://www.handbook.unsw.edu.au/undergraduate/courses/2021/CVEN3702

OBJECTIVES

In the Solid Waste component, the objectives of this course are to:

- Provide an appreciation of the management of solid waste in a systems context; ie to understand the nature of the various functional elements in regional waste management systems and the relationships among them, so that optimal systems can be designed.

- Provide an understanding of the characteristics of urban solid waste, and be able to estimate the composition and quantities for any region.

- Be able to understand the data requirements for, and then be able to prepare concept designs of, common functional elements (such as transfer stations, material recovery facilities, landfills, treatment plants) in solid waste management systems.

In the Contaminant Transport component, the objectives are to:

- Provide an understanding of the fundamental processes of tracer or pollutant movement in the biosphere. Specifically, this will include receiving waters and the atmosphere.

- Provide you with the skills to enable you to apply theory to solve problems and make estimates of pollution levels in the environment.

HOW DO ASESSMENT STRATEGIES ASSIST IN ACHIEVING THESE OBJECTIVES, AND HOW DO THE OBJECTIVES CONTRIBUTE TO ACHIEVEMENT OF PROGRAM OUTCOME ATTRIBUTES

Contaminant transport component:

The capacity for analytical and critical thinking and for creative problem solving: You will be exposed to, and be required to solve, numerous and varied problems in the Lectures, the Exercises and the assignments - “the learning is in the doing”. All these problems will cover a variety of scenarios, and where possible, will be

each group get the same assignment marks.

In general, both components of the course aim to facilitate:

- A respect for ethical practice and social responsibility: you will need to conduct the preparation and submission of their assignment projects in accordance with UNSW policies on academic conduct as detailed at:
  http://www.gs.unsw.edu.au/policy/documents/studentcodepolicy.pdf

  and in accordance with the IEAust's code of ethics as at (search code of ethics there):

  http://www.engineersaustralia.org.au

- The skills of effective communication: in this course, memo's and technical reports need to be appropriate for a technical audience in Councils and consulting engineers. They are not novels. They are technical reports, typically using an introductory sentence and point form, and provided with at least 2 levels of numbered headings. Harvard referencing system must be used.

TEACHING STRATEGIES

ASSESSMENT OV

Item	Weighting	Learning outcomes assessed	Assessment Criteria (this needs to explicitly describe what students are expected to demonstrate in the task)	Due date and submission requirements	Deadline for absolute fail	Marks returned
Assignment 1 Section (1)	10	Conceptual design of a landfill	Assess the understanding of the concepts, data collection, calculatiding of tds3n5.8 .2 (g)-12.3 (n)0.5 (o/MCI4 (l)3.1)-r30 (s)-8 ( )0.5 (t)-148 3.2 (h			

RELEVANT RESOURCES

Contaminant Transport Component:

There is no textbook prescribed for this part of the course. The Lecture Notes are reasonably detailed and numerous references are cited within them. The main references are:

1. Ippen, A. T. (editor), Estuary and Coastline Hydrodynamics, McGraw-Hill Company, Inc., New York, 1966, [UNSW Library – 1 copy]

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