UNSW Course Outline

CVEN4701 Planning Sustainable Infrastructure - 2024

Published on the 26 Aug 2024

General Course Information

Course Code : CVEN4701
Year : 2024
Term : Term 3
Teaching Period : T3
Is a multi-term course? : No
Faculty : Faculty of Engineering
Academic Unit : School of Civil and Environmental Engineering
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

The course builds on introductory knowledge from Stages 1 to 3 in water, transport, waste and engineering operations and enables students to design infrastructure systems that include social and cultural context, as well as having regard to sustainability principles in the planning of urban

and regional precincts. The design brief will direct the conceptual planning of the infrastructure and allow students to be familiar with sustainability in terms of water and waste management, transport services, energy supply and distribution. This capstone course will encourage teamwork as well as independent and reflective learning through the delivery of individual and group assessment tasks that allow for critical thinking and the development of creative and appropriate sustainable outcomes in urban and regional communities.

Course Aims

The course aims to enable engineers to analyse and design sustainable infrastructure to support the needs of urban and regional economies and populations. It builds on and applies the core concepts learned in introductory tools, water, transport and engineering operation courses in Stages 1 to 3 of the program.

The course provides complementary learning using different urban or regional contexts to the planning and design of infrastructure in the areas of water and waste management, transport services, energy supply and distribution.

The course introduces planning approaches to enable systems thinking for a specific design brief. It will address macro to asset specific scale concerns, including societal, cultural and environmental concepts, so that appropriate sustainable outcomes are achieved for urban and regional communities.

Relationship to Other Courses

The course builds on fundamentals from courses in Years 1, 2, and 3, plus the design of components of various infrastructure covered in:

- CVEN1701 Environmental Principles
- DESN1000 Engineering Design and Innovation
- CVEN2402 Transport Engineering and Environmental Sustainability
- DESN2000 Engineering Design and Professional Practice
- CVEN3502 Water and Wastewater Engineering
- CVEN3103 Engineering Operations and Control

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Critically assess infrastructure sustainability at varying scales and contexts.
CLO2 : Solve urban and regional infrastructure problems using sustainability principles.
CLO3 : Display creativity by creating infrastructure solutions that may not be conventional.
CLO4 : Carry out a literature review, work independently, work in a group and present findings effectively.

Course Learning Outcomes	Assessment Item
CLO1 : Critically assess infrastructure sustainability at varying scales and contexts.	• Project management and Professional Development
CLO2 : Solve urban and regional infrastructure problems using sustainability principles.	• Online Quiz • Presentation • Technical report • Project management and Professional Development
CLO3 : Display creativity by creating infrastructure solutions that may not be conventional.	• Project management and Professional Development
CLO4 : Carry out a literature review, work independently, work in a group and present findings effectively.	• Presentation

Learning and Teaching Technologies

Moodle - Learning Management System | Blackboard Collaborate

Learning and Teaching in this course

Moodle - Learning Management System | Blackboard Collaborate

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Online Quiz Assessment Format: Individual	15%	Start Date: 09/09/2024 12:00 AM
Presentation Assessment Format: Group	15%	Start Date: 10/11/2024 11:45 PM Due Date: 03/11/2024 11:45 PM
Project management and Professional Development Assessment Format: Individual	25%	Start Date: 09/09/2024 12:00 AM Due Date: Part A: report due on Friday 15/11/24 and interview on Tuesday 19/11/24. Part B reports due on Friday 4/10/24.
Technical report Assessment Format: Individual	45%	Start Date: 09/09/2024 12:00 AM Due Date: 17/11/2024 11:59 PM

Assessment Details

Online Quiz

Assessment Overview

Technical assessment of sustainability principles, critical thinking, self-reflection and professional attributes.

Individual online quiz on Learning Management System conducted during class consisting of multiple-choice questions. Marks will be returned to students via Moodle within 1 week

Course Learning Outcomes

- CLO2 : Solve urban and regional infrastructure problems using sustainability principles.

Assessment Length

15 Multiple choice questions

Assessment information

See Moodle for online quiz details

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

Not Applicable

Generative AI is not considered to be of assistance to you in completing this assessment. If you do use generative AI in completing this assessment, you should attribute its use.
For more information on Generative AI and permitted use please see here.

Presentation

Assessment Overview

Video presentation on the integration of discipline subject matter with the social, cultural and/or environmental background for case study location.

3-minute group video presentation with peering marking being returned within 3 weeks to students via the Learning Management System.

Course Learning Outcomes

- CLO2 : Solve urban and regional infrastructure problems using sustainability principles.
- CLO4 : Carry out a literature review, work independently, work in a group and present findings effectively.

Assessment Length

3 minute group video presentation

Submission notes

Video submission due Sunday 10/11/24 11:45PM which will be followed by peer marking session on Tuesday 12/11/24 9:00- 11:00 AM

Assessment information

Peer marking of group video presentations will occur during class in Week 9 (see Moodle).

All group members are required to attend for satisfactory completion of this assessment task.

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

Not Applicable

Generative AI is not considered to be of assistance to you in completing this assessment. If you do use generative AI in completing this assessment, you should attribute its use.
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Project management and Professional Development

Assessment Overview

Part A - Group assessment project management report and group interview
Part B - Individual ongoing professional development modules

Feedback will be provided on the Learning Management System for both Parts A and B.

Part A: Interview times are in intervals of 15 mins. All group members are required to attend the interview for satisfactory completion of the Assignment.

Part B: Each student is required to participate in two modules. The modules are designed to support your understanding of the Stage 1 Competencies for Professional Engineers and support the completion of your assessment tasks (Assignment 2, 3 - Part A and 4).

Submission for the modules is via the Learning Management Systems.

Course Learning Outcomes

- CLO1 : Critically assess infrastructure sustainability at varying scales and contexts.
- CLO2 : Solve urban and regional infrastructure problems using sustainability principles.
- CLO3 : Display creativity by creating infrastructure solutions that may not be conventional.

Assessment Length

Part A - Group report and group interview; Part B - 2 Online modules (see Moodle)

Assessment information

Part A - Group interviews will occur during class in Week 11 (see Moodle).

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

Generative AI Permission Level

Not Applicable

Generative AI is not considered to be of assistance to you in completing this assessment. If you do use generative AI in completing this assessment, you should attribute its use.
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Technical report

Assessment Overview

Technical assessment on either water, waste, transport or energy for case study location.

Maximum 40 pages, including appendices and references.

Submitted via the Learning Management System. Feedback will be provided at the end of term with the release of results.

Course Learning Outcomes

- CLO2 : Solve urban and regional infrastructure problems using sustainability principles.

Assessment Length

10 pages written report plus Appendix. Maximum 40 pages.

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

Generative AI Permission Level

Not Applicable

Generative AI is not considered to be of assistance to you in completing this assessment. If you do use generative AI in completing this assessment, you should attribute its use.
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General Assessment Information

Students will undertake a variety of individual and group assessment tasks that are associated with course objectives.

Groups with four members will be self-selected using group formation tool on Moodle by end of Week 1.

For group assessment items, only one submission is allowed to be submitted per group (**Your first submission is your final submission**). All assessment submissions will be through Moodle and/or Turnitin.

Assessment components, the marks assigned to each task, and the dates of submission are set out below and on Moodle.

See assessment details on individual and group assignments outlines on Moodle.

Penalties for late submissions will be penalised at the rate of 5% per day after the due date and time have expired.

All group members are required to attend the peer marking of video presentation (Week 9) and project managment report interview (Week 11) for satisfactory completion of the assessment task.

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 9 September - 15 September	Workshop	Tuesday (9-11) Course Introduction and site study information (Aryampa) Tuesday (13-15) Assessment tasks and course expectations (Stuetz) Thursday (9-11) Site visit (Aryampa, Stuetz)
Week 2 : 16 September - 22 September	Workshop	Tuesday (9-11) Sustainability principles (Fisher) Tuesday (13-15) Sustainability workshop (Fisher) Thursday (9-11) Communication and teamwork (Care)
Week 3 : 23 September - 29 September	Workshop	Tuesday (9-11) Waste (Aryampa) Tuesday (13-15) Waste (Aryampa) Thursday (9-11) Transport (Dixit)
Week 4 : 30 September - 6 October	Workshop	Tuesday (9-11) Energy (Yildiz) Tuesday (13-15) Energy (Yildiz) Thursday (9-11) Transport (Dixit)
Week 5 : 7 October - 13 October	Workshop	Tuesday (9-11) Water (Stuetz) Tuesday (13-15) Water workshop (Stuetz)/ Waste workshop (Aryampa) Thursday (9-11) Transport workshop (Dixit) / Energyworkshop (Jinyi)
Week 6 : 14 October - 20 October	Other	Non-teaching
Week 7 : 21 October - 27 October	Workshop	Tuesday (9-11) Workshop panel (Stuetz, Dixit, Fisher, Jinyi, Aryampa) Tuesday (13-15) Consultation workshop: Video presentation (Stuetz & Aryampa) Thursday (9-11) Consultation workshops: General (Stuetz & Aryampa)
Week 8 : 28 October - 3 November	Workshop	Tuesday (9-11) Consultation workshops: Energy (Farzadhkoo) / Waste (Luo) Tuesday (13-15) Consultation workshops: Transport (Wang) / Water (Wong) Thursday (9-11) Consultation workshop: Project management (Stuetz & Aryampa)
Week 9 : 4 November - 10 November	Workshop	Tuesday (9-11) Presentation watching and peer marking - all students (Stuetz & Aryampa) Tuesday (13-15) Consultation workshop: General (Stuetz & Aryampa) Thursday (9-11) Consultation workshop: General (Stuetz & Aryampa)
Week 10 : 11 November - 17 November	Other	No scheduled class
Week 11 : 18 November - 24 November	Other	Tuesday (9-11) Project Management Interview - all students All Day (Stuetz & Aryampa) Tuesday (13-15) Project Management Interview - all students All Day (Stuetz & Aryampa) Thursday (9-11) No scheduled class

Attendance Requirements

For undergraduate courses with workshops, attendance for those classes is a necessary part of the course. You must attend at least 80% of the workshop in which you are enrolled for the

duration of the sessions.

General Schedule Information

Refer to Course Schedule on Moodle for workshop schedule, indicating the topics and the names of presenter involved, assessment workshops, group consultation workshops, and group and individual assessment activities.

CVEN4701-T3 (2024) Teaching Schedule

Course Resources

Prescribed Resources

Please refer to the Moodle for "Additional Resources" on video presentation information.

Recommended Resources

Please refer to the Moodle for additional "Reading" for additional resources on content topics.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
	Richard Stuetz					Yes	Yes
	Ruth Fisher					No	No
	Simon Heslop					No	No
	Vinayak Dixit					No	No
	Shamim Aryampa					No	No

Other Useful Information

Academic Information

I. Special consideration and supplementary assessment

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, or within 3 working days of, submitting an assessment or sitting an exam.

Please note that UNSW has a Fit to Sit rule, which means that if you sit an exam, 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.

II. Administrative matters and links

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
- Equitable Learning Services

III. Equity and diversity

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equitable Learning Services. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

IV. Professional Outcomes and Program Design

Students are able to review the relevant professional outcomes and program designs for their streams by going to the following link: https://www.unsw.edu.au/engineering/student-life/student-resources/program-design.

Note: This course outline sets out the 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 or your primary learning management system (LMS) 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/Moodle/LMS, the description in the Course Outline/Moodle/LMS applies.

Academic Honesty and Plagarism

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.

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

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

Submission of Assessment Tasks

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

- Weekly online tests or laboratory work worth a small proportion of the subject mark;
- Exams, peer feedback and team evaluation surveys;
- Online quizzes where answers are released to students on completion;
- Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date; and,
- Pass/Fail assessment tasks.

Faculty-specific Information

Engineering Student Support Services – The Nucleus - enrolment, progression checks, 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

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)

School Contact Information

For assistance with enrolment, class registration, progression checks and other administrative matters, please see the Nucleus: Student Hub. They are located inside the Library – first right as you enter the main library entrance. You can also contact them via http://unsw.to/webforms or reserve a place in the face-to-face queue using the UniVerse app.

For course administration matters, please contact the Course Coordinator.

Questions about the this course should normally be asked during the scheduled class so that everyone can benefit from the answer and discussion.