UNSW Course Outline

SUSD0003 Energy and the Built Environment - 2024

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General Course Information

Course Code : SUSD0003
Year : 2024
Term : Term 3
Teaching Period : T3
Is a multi-term course? : No
Faculty : Faculty of Arts, Design and Architecture
Academic Unit : School of Built Environment
Delivery Mode : Online
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Postgraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

In this course, you will gain comprehensive knowledge of energy related issues in the built environment.

Material covered in this course includes energy demand and supply, technologies and infrastructure, greenhouse gas/ carbon emissions, energy related interactions with other aspects of sustainable development and aspects of energy efficient cities, precinct and buildings. You will also learn about tools for assessing energy performance, related policies, planning, design, management and technological strategies applied at different scales and stages in the built environment.

Relationship to Other Courses

This elective course attracts students from diverse academic backgrounds who seek to expand their knowledge of sustainable built environment. In particular, architectural students use the knowlege gained in this course to various Design studios (ARCH7202, ARCH7251, ARCH7252 ARCH7253 ARCH7254, ARCH7112).

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Explain the fundamental issues and challenges of sustainable energy generation and consumption in the built environment sector.
CLO2 : Analyse and justify energy efficient approaches to reducing carbon and greenhouse gas emissions in the built environment sector.
CLO3 : Critically review energy modelling assumptions, climate data sets and default values to inform design decisions.
CLO4 : Evaluate mandatory and voluntary energy efficiency standards and tools to achieve zero carbon or carbon positive developments.

Course Learning Outcomes	Assessment Item
CLO1 : Explain the fundamental issues and challenges of sustainable energy generation and consumption in the built environment sector.	• Individual Report • Weekly activity • Online forum
CLO2 : Analyse and justify energy efficient approaches to reducing carbon and greenhouse gas emissions in the built environment sector.	• Individual Report • Weekly activity • Online forum
CLO3 : Critically review energy modelling assumptions, climate data sets and default values to inform design decisions.	• Group Proposal • Weekly activity • Online forum
CLO4 : Evaluate mandatory and voluntary energy efficiency standards and tools to achieve zero carbon or carbon positive developments.	• Group Proposal • Weekly activity • Online forum

Learning and Teaching Technologies

Moodle - Learning Management System

Learning and Teaching in this course

Learning resources are listed on Moodle.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Individual Report Assessment Format: Individual	40%	Due Date: Week 6: 14 October - 20 October
Group Proposal Assessment Format: Group	30%	Start Date: Not Applicable Due Date: Week 11: 18 November - 24 November
Weekly activity Assessment Format: Individual	20%	Start Date: Not Applicable Due Date: Weekly
Online forum Assessment Format: Individual	10%	Due Date: Weekly

Assessment Details

Individual Report

Assessment Overview

You will investigate the energy outlook of a country and write a report proposing a sustainable energy transition strategy for the selected country.

Grading will be done against assessment criteria accompanied by written feedback.

Course Learning Outcomes

- CLO1 : Explain the fundamental issues and challenges of sustainable energy generation and consumption in the built environment sector.
- CLO2 : Analyse and justify energy efficient approaches to reducing carbon and greenhouse gas emissions in the built environment sector.

Detailed Assessment Description

Additional information available on Moodle.

Assessment Length

3,000 words

Submission notes

Additional information available on Moodle.

Assignment submission Turnitin type

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

Generative AI Permission Level

Planning/Design Assistance

You are permitted to use generative AI tools, software or services to generate initial ideas, structures, or outlines. However, you must develop or edit those ideas to such a significant extent that what is submitted is your own work, i.e., what is generated by the tool, software or service should not be a part of your final submission. You should keep copies of your iterations to show your Course Authority if there is any uncertainty about the originality of your work.
If your Convenor has concerns that your answer contains passages of AI-generated text or media that have not been sufficiently modified you may be asked to explain your work, but we recognise that you are permitted to use AI generated text and media as a starting point and some traces may remain. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.
For more information on Generative AI and permitted use please see here.

Group Proposal

Assessment Overview

In a group, you will produce a detailed study of an existing residential building and develop either a retrofit or new development proposal that is zero energy or carbon positive.

Grading will be done against assessment criteria accompanied by written feedback.

Course Learning Outcomes

- CLO3 : Critically review energy modelling assumptions, climate data sets and default values to inform design decisions.
- CLO4 : Evaluate mandatory and voluntary energy efficiency standards and tools to achieve zero carbon or carbon positive developments.

Detailed Assessment Description

Additional information available on Moodle.

Assessment Length

Additional information available on Moodle.

Assessment information

Additional information available on Moodle.

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

Planning/Design Assistance

You are permitted to use generative AI tools, software or services to generate initial ideas, structures, or outlines. However, you must develop or edit those ideas to such a significant extent that what is submitted is your own work, i.e., what is generated by the tool, software or service should not be a part of your final submission. You should keep copies of your iterations to show your Course Authority if there is any uncertainty about the originality of your work.
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Weekly activity

Assessment Overview

You will complete weekly activities, writing tasks and peer review.

Grading will be done against the quality and number of contributions you make weekly.

Course Learning Outcomes

- CLO1 : Explain the fundamental issues and challenges of sustainable energy generation and consumption in the built environment sector.
- CLO2 : Analyse and justify energy efficient approaches to reducing carbon and greenhouse gas emissions in the built environment sector.
- CLO3 : Critically review energy modelling assumptions, climate data sets and default values to inform design decisions.
- CLO4 : Evaluate mandatory and voluntary energy efficiency standards and tools to achieve

zero carbon or carbon positive developments.

Detailed Assessment Description

Additional information available on Moodle.

Assessment Length

Additional information available on Moodle.

Assessment information

Additional information available on Moodle.

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

Simple Editing Assistance

In completing this assessment, you are permitted to use standard editing and referencing functions in the software you use to complete your assessment. These functions are described below. You must not use any functions that generate or paraphrase passages of text or other media, whether based on your own work or not.
If your Convenor has concerns that your submission contains passages of AI-generated text or media, you may be asked to account for your work. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.
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Additional information available on Moodle.

Online forum

Assessment Overview

You will contribute to online discussions covering energy and the built environment.

Grading will be done against assessment criteria accompanied by written feedback.

Course Learning Outcomes

- CLO1 : Explain the fundamental issues and challenges of sustainable energy generation and consumption in the built environment sector.
- CLO2 : Analyse and justify energy efficient approaches to reducing carbon and greenhouse gas emissions in the built environment sector.

- CLO3 : Critically review energy modelling assumptions, climate data sets and default values to inform design decisions.
- CLO4 : Evaluate mandatory and voluntary energy efficiency standards and tools to achieve zero carbon or carbon positive developments.

Detailed Assessment Description

Additional information available on Moodle.

Assessment Length

No limit

Submission notes

Additional information available on Moodle.

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

Simple Editing Assistance

In completing this assessment, you are permitted to use standard editing and referencing functions in the software you use to complete your assessment. These functions are described below. You must not use any functions that generate or paraphrase passages of text or other media, whether based on your own work or not.
If your Convenor has concerns that your submission contains passages of AI-generated text or media, you may be asked to account for your work. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.
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Additional information available on Moodle.

General Assessment Information

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 9 September - 15 September	Activity	Watch lecture videos • Module 1: Energy outlook Read assigned papers and attempt quizzes Submit a 300-word response on the given topic Contribute to online discussion forum
	Seminar	Course Introduction Assessment introduction Guest lecture Discussions
Week 2 : 16 September - 22 September	Activity	Watch lecture videos • Module 2: Energy demand and energy transition Read assigned papers and attempt quizzes Submit a 300-word response on the given topic Provide a peer review for the assigned write-up Contribute to online discussion forum
Week 3 : 23 September - 29 September	Activity	Watch lecture videos • Module 3: Energy conservation/ optimisation in the built environment Read assigned papers and attempt quizzes Submit a 300-word response on the given topic Provide a peer review for the assigned write-up Contribute to online discussion forum
	Workshop	NatHERS tool for determining building energy efficiency
	Assessment	A1 Preliminary submission for formative feedback
Week 4 : 30 September - 6 October	Activity	Watch lecture videos • Module 4: Low carbon cities/ precinct Read assigned papers and attempt quizzes Submit a 300-word response on the given topic Provide a peer review for the assigned write-up Contribute to online discussion forum
Week 5 : 7 October - 13 October	Activity	Watch lecture videos • Module 5: Low energy/ Energy efficient/ Zero energy/ Carbon positive buildings Read assigned papers and attempt quizzes Submit a 300-word response on the given topic Provide a peer review for the assigned write-up Contribute to online discussion forum
Week 6 : 14 October - 20 October	Activity	Watch lecture videos • Module 6: Energy Rating and Assessment Tools Read assigned papers and attempt quizzes Submit a 300-word response on the given topic Provide a peer review for the assigned write-up Contribute to online discussion forum
	Seminar	Assessment introduction Guest lecture Discussions
	Assessment	A1 Final submission
Week 7 : 21 October - 27 October	Activity	Watch lecture videos • Module 7: Performance gap: Estimated energy VS Actual energy consumption Read assigned papers and attempt quizzes Submit a 300-word response on the given topic Provide a peer review for the assigned write-up Contribute to online discussion forum
	Seminar	Guest lecture Discussions
Week 8 : 28 October - 3 November	Activity	Watch lecture videos • Module 8: Carbon positive and healthy buildings for the future climate Read assigned papers and attempt quizzes Submit a 300-word response on the given topic Provide a peer review for the assigned write-up Contribute to online discussion forum
	Assessment	A2 preliminary submission for formative feedback
Week 9 : 4 November - 10 November	Activity	Watch lecture videos • Module 9: Integrated technology to enhance building energy performance Read assigned papers and attempt quizzes

		Submit a 300-word response on the given topic Provide a peer review for the assigned write-up Contribute to online discussion forum
	Seminar	Guest lecture Discussions
Week 10 : 11 November - 17 November	Activity	Provide a peer review for the assigned write-up
Week 11 : 18 November - 24 November	Assessment	A2 Final submission

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

General Schedule Information

This course is delivered online - lectures are pre-recorded and tutorials are live sessions. Tutorials are scheduled on Thursdays from 5 pm to 9 pm (on weeks 1, 3, 6, 7, and 9) and follow a seminar format.

Course Resources

Prescribed Resources

Learning resources are listed on Moodle.

Recommended Resources

Learning resources are listed on Moodle.

Additional Costs

No additional costs.

Course Evaluation and Development

Student feedback on this course is formally collected through the myExperience process. All students will get the chance to formally feedback towards the end of the term. For more details, see here: https://www.student.unsw.edu.au/myexperience. However, students are also encouraged to send any feedback, concerns, or comments to the course convenor at any time during the term.

Previous students told us to provide more support in demonstrating net zero for existing dwellings.

We have responded to this feedback by including a workshop on using a NatHERS

accredited tool (HERO).

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Lecturer	Anir Upad hyay		Room 4009, Level 4, Anita B. Lawrence Centre		Mon and Tue 1 pm - 3pm. However, encouraged to send an email to inquire about availability or to schedule a consultation	Yes	Yes

Other Useful Information

Academic Information

For essential student information relating to:

- UNSW and Faculty policies and procedures;
- Student Support Services;
- Student equity and disability;
- Special Consideration in the event of illness or misadventure;
- Examination information;
- Review of results;

Please see: https://www.unsw.edu.au/arts-design-architecture/student-life/resources-support/protocols-guidelines

Academic Honesty and Plagarism

Plagiarism is using the words or ideas of others and presenting them as your own. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement.

UNSW groups plagiarism into the following categories:

- Copying: Using the same or very similar words to the original text or idea without acknowledging the source or using quotation marks. This includes copying materials, ideas or concepts from a book, article, report or other written document, presentation, composition, artwork, design, drawing, circuitry, computer program or software, website, internet, other electronic resource, or another person's assignment without appropriate acknowledgement.
- Inappropriate paraphrasing: Changing a few words and phrases while mostly retaining the original information, structure and/or progression of ideas of the original without

acknowledgement. This also applies in presentations where someone paraphrases another's ideas or words without credit and to piecing together quotes and paraphrases into a new whole, without appropriate referencing.
- Collusion: Working with others but passing off the work as a person's individual work. Collusion also includes providing your work to another student for the purpose of them plagiarising, paying another person to perform an academic task, stealing or acquiring another person's academic work and copying it, offering to complete another person's work or seeking payment for completing academic work.
- Inappropriate citation: Citing sources which have not been read, without acknowledging the "secondary" source from which knowledge of them has been obtained.
- Duplication ("self-plagiarism"): Submitting your own work, in whole or in part, where it has previously been prepared or submitted for another assessment or course at UNSW or another university.

The UNSW Academic Skills support offers resources and individual consultations. Students are also reminded that careful time management is an important part of study. One of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and proper referencing of sources in preparing all assessment items. UNSW Library has the ELISE tool available to assist you with your study at UNSW. ELISE is designed to introduce new students to studying at UNSW, but it can also be a great refresher during your study.

Completing the ELISE tutorial and quiz will enable you to:

- analyse topics, plan responses and organise research for academic writing and other assessment tasks
- effectively and efficiently find appropriate information sources and evaluate relevance to your needs
- use and manage information effectively to accomplish a specific purpose
- better manage your time
- understand your rights and responsibilities as a student at UNSW
- be aware of plagiarism, copyright, UNSW Student Code of Conduct and Acceptable Use of UNSW ICT Resources Policy
- be aware of the standards of behaviour expected of everyone in the UNSW community
- locate services and information about UNSW and UNSW Library

Use of AI for assessments

As AI applications continue to develop, and technology rapidly progresses around us, we remain committed to our values around academic integrity at UNSW. Where the use of AI tools, such as ChatGPT, has been permitted by your course convener, they must be properly credited and your submissions must be substantially your own work.

In cases where the use of AI has been prohibited, please respect this and be aware that where unauthorised use is detected, penalties will apply.

Use of AI for assessments | UNSW Current Students

Submission of Assessment Tasks

Assessment tasks must be submitted electronically via either Turnitin or a Moodle assignment. In instances where this is not possible, alternative submission details will be stated on your course's Moodle site. For information on how to submit assignments online via Moodle: https://student.unsw.edu.au/how-submit-assignment-moodle

Late Submission Penalty

UNSW has a standard late submission penalty of:

- 5% per calendar day,
- for all assessments where a penalty applies,
- capped at five calendar days (120 hours) from the assessment deadline, after which a student cannot submit an assessment, and
- no permitted variation.

Students are expected to manage their time to meet deadlines and to request Special Consideration as early as possible before the deadline. Support with Time Management is available here.

Important note: UNSW has a "fit to sit/submit" rule, which means that if you sit an exam or submit a piece of assessment, you are declaring yourself fit to do so and cannot later apply for Special Consideration. This is to ensure that if you feel unwell or are faced with significant circumstances beyond your control that affect your ability to study, you do not sit an examination or submit an assessment that does not reflect your best performance. Instead, you should apply for Special Consideration as soon as you realise you are not well enough or are otherwise unable to sit or submit an assessment.

School Contact Information

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