UNSW Course Outline

CVEN4309 Sustainable Timber Engineering - 2024

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General Course Information

Course Code : CVEN4309
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 : Postgraduate, Undergraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

Structural and Construction Engineers may be responsible for the design and construction of timber structures; from timber frame housing to high rise engineered timber structures. This course provides an introduction to the design of timber structures using a range of timber

products and the relevant Australian and European Standards. It further outlines the considerations to design for Durability, Fire, Manufacture and Assembly that play an important role in timber engineering.

Course Aims

This course aims to apply students' understanding and of engineering fundamentals such as statics and structural analysis, in the context of designing lightweight timber structures and mass timber structures (with a focus on cross-laminated timber) using relevant Australian and European Standards. In particular, the course introduces students to timber as a sustainable and effective material for structural members and the range of engineered timber products available for structural design. This course allows students to demonstrate their learning in the analysis and design of structures including residential timber buildings and multi-level office buildings using the most current innovative design methods in industry.

Relationship to Other Courses

Pre-requisites to this course include ENGG2400 (Mechanics of Solids) and CVEN2303 (Structural Analysis and Modelling). This course builds on the knowledge developed in those earlier courses, through the analysis and design of timber structures against strength and serviceability requirements of the releveant Australian Standards.

In ENGG2400, students learnt to calculate deformations and stresses in materials due to axial, shear and bending actions. In CVEN4309, students will apply this knowledge for cases of lightweight timber and mass timber products

In CVEN2303, students were able to use advanced techniques to deduce the response of structures to various loading cases. In CVEN4309, students will apply this knowledge to common timber structures, such as lightweight stud walls, flooring systems, decks; and floor / wall panels formed by mass timber products

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Appreciate the range of potential timber structures from houses to multistorey timber buildings and larger iconic structures.
CLO2 : Design and evaluate the capacity of timber members and connections by interpreting and applying relevant Australian and European Standards.
CLO3 : Incorporate practical durability, fire, manufacture and assembly considerations in design.

Course Learning Outcomes	Assessment Item
CLO1 : Appreciate the range of potential timber structures from houses to multistorey timber buildings and larger iconic structures.	• Online Revision Modules • Online Quizzes • Final Examination
CLO2 : Design and evaluate the capacity of timber members and connections by interpreting and applying relevant Australian and European Standards.	• Online Revision Modules • Online Quizzes • Final Examination
CLO3 : Incorporate practical durability, fire, manufacture and assembly considerations in design.	• Online Revision Modules • Online Quizzes • Final Examination

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams | SharePoint

Learning and Teaching in this course

This course is delivered primarily online using professional industry lecture material

Students are to view the material each week and complete the online based activities

There is an optional F2F seminar session each week where the course convener and demonstrators will be available for assistance. Here, the lecturer will review the week's content, deliver a practice probelm, then answer any questions. This session will be recorded.

Other Professional Outcomes

https://www.unsw.edu.au/engineering/student-life/student-resources/program-design

Additional Course Information

In addition to the viewing of the pre-recorded lecture videos and completing online tasks, you are expected to commit an additional 10 – 12 hours per week to independent learning and general problem solving.

The teaching staff in this course are here to help you succeed. In order to receive assistance most efficiently regarding course content, please be proactive, and use the following steps:

1. Ask your lecturer / demonstrator during scheduled seminar workshops for immediate

response
2. Post your question on Teams, where peers and staff can quickly answer your query (responses provided within 48 hours)
3. Email the course convener (responses provided within a week)

If you are having issues of a confidential nature please feel free to contact the course convener by email at any time and you will receive a reponse within 2 working days.

Personal responses to individual questions regarding course content sent by email to the course convener may take longer, and so posting in the appropriate Teams channels is recommended.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Online Revision Modules Assessment Format: Individual	10%	Start Date: Week 1 Due Date: Weekly
Online Quizzes Assessment Format: Individual	30%	Due Date: 6pm Wednesday Weeks 4, 7, 10
Final Examination Assessment Format: Individual	60%	Start Date: Exam Period Due Date: See exam timetable.

Assessment Details

Online Revision Modules

Assessment Overview

Each week, revision problems will be required to be completed through Moodle in the form of online learning modules. There are unlimited attempts to complete each learning module before the due date. Each new attempt provides you randomised values, the attempt with the highest mark will be recorded.

Feedback is immediate following submission. Each module is worth the same weighting.

Course Learning Outcomes

- CLO1 : Appreciate the range of potential timber structures from houses to multistorey timber buildings and larger iconic structures.
- CLO2 : Design and evaluate the capacity of timber members and connections by interpreting and applying relevant Australian and European Standards.
- CLO3 : Incorporate practical durability, fire, manufacture and assembly considerations in design.

Assessment information

If you cannot complete any given module before the due date you must receive special consideration for the duration it was open. If successful, your total weighting of each module will be re-weighted accordingly

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.
For more information on Generative AI and permitted use please see here.

Online Quizzes

Assessment Overview

There will be three Progress Quizzes to be completed through the Learning Management System. There is one attempt to complete each quiz. Students may upload hand-written worked solutions to receive partial marks.

Results will be returned within 2 weeks of each quiz.

Course Learning Outcomes

- CLO1 : Appreciate the range of potential timber structures from houses to multistorey timber buildings and larger iconic structures.
- CLO2 : Design and evaluate the capacity of timber members and connections by interpreting and applying relevant Australian and European Standards.
- CLO3 : Incorporate practical durability, fire, manufacture and assembly considerations in design.

Detailed Assessment Description

The **three (3) Progress Quizzes** are scheduled in the timetable for Wednesday 6pm to 7.30pm (Weeks 4, 7, 10). These quizzes are held online and are 90 minutes in duration.

Assessment Length

90 minutes each

Submission notes

Final answers in Moodle Quiz, hand-written working scanned and uploaded to Moodle Assignment

Assessment information

There are **three (3) progress quizzes** scheduled for **6pm on Wednesdays of Week 4, 7, and 10**.

If you cannot sit a progress quiz you must receive special consideration prior to the date. If successful, your weighting of each missed quiz will be transferred to the final exam. Each quiz is worth the same weighting (10%)

Assignment submission Turnitin type

Not Applicable

Generative AI Permission Level

No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.
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Final Examination

Assessment Overview

The final exam is a 2-hour exam during the formal examination period. The exam covers all the worked covered during the term.

Marks are awarded for correct answers, and there are marks provided for using correct methods if working is uploaded.

Course Learning Outcomes

- CLO1 : Appreciate the range of potential timber structures from houses to multistorey timber buildings and larger iconic structures.
- CLO2 : Design and evaluate the capacity of timber members and connections by interpreting and applying relevant Australian and European Standards.
- CLO3 : Incorporate practical durability, fire, manufacture and assembly considerations in design.

Assessment Length

120 minutes

Assignment submission Turnitin type

Not Applicable

Hurdle rules

A mark of at least 40% in the final examination is required before the class work is included in the final mark.

Generative AI Permission Level

No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.
For more information on Generative AI and permitted use please see here.

General Assessment Information

Please keep on top of course announcements regarding assessments during term.

If students are unable to complete scheduled assessments, they are recommended to apply for special consideration as soon as possible (https://www.student.unsw.edu.au/special-consideration)

The Online Learning Modules and Progress Quizzes are intended to provide an avenue for students to gauge their performance against the expected level of understanding of this course's conent, and receive feedback. If a student believes they are underperforming during term, they are highly recommended to discuss progress with the course coordinator in preparation of the final exam - he wishes you all to succeed.

Grading Basis

Standard

Requirements to pass course

The final grade for this course will normally be based on the sum of the scores from each of the assessment tasks. A mark of at least 40% in the final examination is required before the class work (Weekly Online Revision Modules and Progress Quizzes) is included in the final mark. Failure to meet this hurdle means that the percentage score in the final exam becomes the student's final grade for the course.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 9 September - 15 September	Blended	Introduction to Timber Engineering
Week 2 : 16 September - 22 September	Blended	Bending of Timber Elements
Week 3 : 23 September - 29 September	Blended	Tension and Compression of Timber Members
Week 4 : 30 September - 6 October	Blended	Capacity of Connections for Timber Members
Week 5 : 7 October - 13 October	Blended	Introduction to Cross-Laminated Timber
Week 6 : 14 October - 20 October	Other	FLEXIBILITY WEEK
Week 7 : 21 October - 27 October	Blended	Design of Cross-Laminated Timber Elements
Week 8 : 28 October - 3 November	Blended	Design of Connections for Cross Laminated Timber Elements
Week 9 : 4 November - 10 November	Blended	Introduction to Fire Design and Engineering
Week 10 : 11 November - 17 November	Blended	Revision of Course

Attendance Requirements

Not Applicable - as no class attendance is required

General Schedule Information

The topic schedule is as shown (note this is estimated only and subject to change during term).

Please keep on top of course announcements.

Course Resources

Prescribed Resources

There is no prescribed text for this course

Recommended Resources

Timber Design Handbook: SA HB 108-2013

Additional Costs

There are no additional costs required for this course

Course Evaluation and Development

Student feedback will be collected in the form of myExperience surveys. Your responses to this survey are appreciated, and will be used to improve the course in future iterations.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Daniel O'Shea		Room 708, H20	-	Please email for availability.	No	Yes

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.