

CVEN4309

Sustainable Timber Engineering

Term 3, 2022



Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Daniel O'Shea	d.oshea@unsw.edu.au	Please email for availability.	Room 108, H20	

School Contact 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)

Course Details

Units of Credit 6

Summary of the Course

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.

NOTE: This course is being run over a shortened 5 week period due to the Course Convener being on parental leave in the earlier weeks of Term 3. Thankyou for understanding!

Reference to Weeks in this term refers to those of Term T3B. Week 1 commences on the 17th of October (equivalent to Week 6 in T3)

Course Aims

Success in this course will allow students:

- To build an understanding of sustainable timber design.
- To understand the nature of timber products and engineering properties.
- To apply acquired theory to the design of multi-level office and residential timber buildings.
- To understand the methods involved in the manufacture and assembly of timber structural members.
- To employ current innovative design methods being used in Australia with regard to Timber design .

Course Learning Outcomes

After successfully completing this course, you should be able to:

Learning Outcome	EA Stage 1 Competencies
1. Apply understanding of timber materials properties, timber structural behaviour to the design of timber structural members and connections;	PE1.1, PE1.2
2. Interpret and apply relevant Australian and European Standards to competently design and evaluate the capacity of timber members and connections;	PE1.1, PE1.2, PE1.3
3. Appreciate the range of potential timber structures from houses to multistorey timber buildings and larger iconic structures;	PE1.1, PE1.2, PE1.4

Teaching Strategies

NOTE: This course is being run over a shortened 5 week period due to the Course Convener being on parental leave in the earlier weeks of Term 3. Thankyou for understanding!

This course will be available hybrid, with pre-recorded lectures made available each week, and weekly workshop problems demonstrated in face-to-face problem solving seminars. These seminars will be recorded for those that cannot make it to campus.

Course content (pre-recorded lectures and workshop materials) will be hosted on Moodle and SharePoint sites. Microsoft Teams will be used for class discussion during term to receive help from the course convener and demonstrators. It is highly recommended that you be involved in answering your peers questions and engaging in discussion.

There are no attendance requirements, however past performance concsistenly demonstrates a strong correlation between class involvement and final student results.

The topics to be covered are:

Week 1 Introduction to Timber Engineering, Engineering Properties, Bending Design, Deflection Design

Week 2 Compression Design, Tension Design

Week 3 Timber-Timber Connection Design, Introduction to Eurocode 5 Timber Design

Week 4 Cross Laminated Timber Design (Bending, Tension, Compression)

Week 5 Fire Design of CLT

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.

Assessment

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Online Revision Modules	10%	See Moodle for due dates	1, 2, 3
2. Progress Quizzes	30%	6pm Friday Week 3 and Week 5	1, 2, 3
3. Final Examination	60%	See exam timetable	1, 2, 3

Assessment 1: Online Revision Modules

Due date: See Moodle for due dates

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.

Additional details

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

Assessment 2: Progress Quizzes

Due date: 6pm Friday Week 3 and Week 5

There will be two Progress Quizzes held at 6pm on the Friday of Week 3 (4th Nov) and Week 5 (18th Nov), to be completed through Moodle. There is one attempt to complete the quiz. Students may upload hand-written worked solutions to be marked by the course marker to receive partial marks.

Results returned within 2 weeks of each quiz

Additional details

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 (15%)

Assessment 3: Final Examination

Due date: See exam timetable

The final exam is a 2 hour Open Book examination. 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.

Hurdle requirement

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

Attendance Requirements

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

Course Schedule

There are two topics covered each week, each will be the focus of the two problem solving seminars that week. Some topics may require multiple sessions.

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

Week (Date)	Topic 1	Topic 2	Assessment
Week 1 (17th Oct)	Introduction to Timber Engineering	Bending / Tension / Compression of Timber Elements	Online Learning Module 1
Week 2 (24th Oct)	Bending / Tension / Compression of Timber Elements	Connection Design	Online Learning Module 2
Week 3 (31st Oct)	Connection Design	Introduction to CLT	Progress Quiz 1 Online Learning Module 3
Week 4 (7th Nov)	Bending/Tension/Compression of CLT	Bending/Tension/Compression of CLT	Online Learning Module 4
Week 5 (14th Nov)	Fire Design CLT	Revision	Progress Quiz 2 Online Learning Module 5

Submission of Assessment Tasks

Please refer to the Moodle page of the course for further guidance on assessment submission.

UNSW has a standard late submission penalty of:

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

Academic Honesty and 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 and where you found them (giving the complete reference details, including page number(s)). The Learning Centre provides further information on what constitutes Plagiarism at:

<https://student.unsw.edu.au/plagiarism>

Academic Information

Final Examinations:

Final exams in T3 2022 will be held online between 25th November - 8th December 2022 inclusive, and supplementary exams between 9th - 13th January 2023 inclusive. You are required to be available on these dates. Please do not to make any personal or travel arrangements during this period.

ACADEMIC ADVICE

- Key Staff to Contact for Academic Advice (log in with your zID and password): <https://intranet.civeng.unsw.edu.au/key-staff-to-contact-during-your-studies-at-unsw>
- [Key UNSW Dates](#) - eg. Census Date, exam dates, last day to drop a course without academic/financial liability etc.
- CVEN Student Intranet (log in with your zID and password): <https://intranet.civeng.unsw.edu.au/student-intranet>
- Student Life at CVEN, including Student Societies: <https://www.unsw.edu.au/engineering/civil-and-environmental-engineering/student-life>
- Special Consideration: <https://student.unsw.edu.au/special-consideration>
- General and Program-Specific Questions: [The Nucleus: Student Hub](#)
- Book an Academic Advising session: <https://app.acuityscheduling.com/schedule.php?owner=19024765>

Disclaimer

This course outline sets out 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 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 (as updated in Moodle), the description in the Course Outline/Moodle applies.

Image Credit

Mike Gal.

CRICOS

CRICOS Provider Code: 00098G

Acknowledgement of Country

We acknowledge the Bedegal people who are the traditional custodians of the lands on which UNSW Kensington campus is located.

Appendix: Engineers Australia (EA) Professional Engineer Competency Standard

Program Intended Learning Outcomes	
Knowledge and skill base	
PE1.1 Comprehensive, theory based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline	✓
PE1.2 Conceptual understanding of the mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline	✓
PE1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline	✓
PE1.4 Discernment of knowledge development and research directions within the engineering discipline	✓
PE1.5 Knowledge of engineering design practice and contextual factors impacting the engineering discipline	
PE1.6 Understanding of the scope, principles, norms, accountabilities and bounds of sustainable engineering practice in the specific discipline	
Engineering application ability	
PE2.1 Application of established engineering methods to complex engineering problem solving	
PE2.2 Fluent application of engineering techniques, tools and resources	
PE2.3 Application of systematic engineering synthesis and design processes	
PE2.4 Application of systematic approaches to the conduct and management of engineering projects	
Professional and personal attributes	
PE3.1 Ethical conduct and professional accountability	
PE3.2 Effective oral and written communication in professional and lay domains	
PE3.3 Creative, innovative and pro-active demeanour	
PE3.4 Professional use and management of information	
PE3.5 Orderly management of self, and professional conduct	
PE3.6 Effective team membership and team leadership	