



# CIVL3305

## Design of Steel and Timber Structures

Session 2, In person-scheduled-weekday, North Ryde 2024

*School of Engineering*

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## General Information

Unit convenor and teaching staff

Unit Convenor & Lecturer

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Tutor

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Credit points

10

Prerequisites

130cp at 1000 level or above and CIVL2301

Corequisites

Co-badged status

Unit description

In this unit, students will be introduced to fundamentals, concepts, and design principles for steel and timber design. Students will learn the properties of steel and timber materials in structural engineering applications. Design requirements will be based on Australian standards for steel design (AS4100) and for timber design (AS1720), and where required, loading standards such as AS1170. Students will develop their understanding of the design of structural steel members and structural timber in a variety of main loading systems utilised in Civil Engineering. Students will gain and develop an understanding of design requirements and section and element design steps according to the ultimate and serviceability limit state criteria. Specific topics include types and properties of structural steel sections, structural steel components, design of steel structures, varieties and properties of structural timber, and design of timber structures.

This unit provides an essential foundation for subsequent design projects and theses for the fourth year of students who would like to pursue more studies and research in the structural engineering field.

## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

On successful completion of this unit, you will be able to:

**ULO1:** convey sound knowledge of the theory, concepts and principles for structural steel and timber design

**ULO2:** comprehend the knowledge of the steel and timber design applications to create safe and accurate design outcomes according to the design requirements set out in Australian Standards

**ULO3:** Perform qualitative and quantitative prediction and assessment of design capacities of structural steel and timber members

**ULO4:** communicate effectively and professionally the outcomes of the structural steel and timber designs

**ULO5:** demonstrate transferable skills (team player, time-management, self-management, creative thinking, and compliance with ethical codes of conducts)

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#">A design project</a>	20%	No	TBA
<a href="#">Mid session test</a>	20%	No	TBA
<a href="#">Regular problem sets</a>	20%	No	TBA
<a href="#">Final Examination</a>	40%	No	TBA

### A design project

Assessment Type <sup>1</sup>: Project

Indicative Time on Task <sup>2</sup>: 21 hours

Due: **TBA**

Weighting: **20%**

Students will submit a report about designing steel and timber structures incorporating major learning contents and also will include and discuss their observations and insight about the designed steel and timber structures.

On successful completion you will be able to:

- convey sound knowledge of the theory, concepts and principles for structural steel and timber design
- comprehend the knowledge of the steel and timber design applications to create safe and accurate design outcomes according to the design requirements set out in Australian Standards
- Perform qualitative and quantitative prediction and assessment of design capacities of structural steel and timber members
- communicate effectively and professionally the outcomes of the structural steel and timber designs
- demonstrate transferable skills (team player, time-management, self-management, creative thinking, and compliance with ethical codes of conducts)

## Mid session test

Assessment Type <sup>1</sup>: Quiz/Test

Indicative Time on Task <sup>2</sup>: 14 hours

Due: **TBA**

Weighting: **20%**

Students will be provided with some problems to solve in the test, which will be invigilated.

On successful completion you will be able to:

- convey sound knowledge of the theory, concepts and principles for structural steel and timber design
- comprehend the knowledge of the steel and timber design applications to create safe and accurate design outcomes according to the design requirements set out in Australian Standards
- Perform qualitative and quantitative prediction and assessment of design capacities of structural steel and timber members
- communicate effectively and professionally the outcomes of the structural steel and timber designs

## Regular problem sets

Assessment Type <sup>1</sup>: Problem set

Indicative Time on Task <sup>2</sup>: 14 hours

Due: **TBA**

Weighting: **20%**

Students will be provided with regular problem sets to complete. A minimum of four problems will be provided in the form of theoretical or lab-based problems.

On successful completion you will be able to:

- convey sound knowledge of the theory, concepts and principles for structural steel and timber design
- comprehend the knowledge of the steel and timber design applications to create safe and accurate design outcomes according to the design requirements set out in Australian Standards
- Perform qualitative and quantitative prediction and assessment of design capacities of structural steel and timber members
- communicate effectively and professionally the outcomes of the structural steel and timber designs

## Final Examination

Assessment Type <sup>1</sup>: Examination

Indicative Time on Task <sup>2</sup>: 21 hours

Due: **TBA**

Weighting: **40%**

Final examination assessing content throughout the semester

On successful completion you will be able to:

- convey sound knowledge of the theory, concepts and principles for structural steel and timber design
- comprehend the knowledge of the steel and timber design applications to create safe and accurate design outcomes according to the design requirements set out in Australian Standards
- Perform qualitative and quantitative prediction and assessment of design capacities of structural steel and timber members

- communicate effectively and professionally the outcomes of the structural steel and timber designs

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<sup>1</sup> If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

<sup>2</sup> Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

## Delivery and Resources

Delivery consists of lectures, SGTA and practical sessions.

**The resources are:**

- The complete lecture notes for the year of delivery.
- Australian standards for the design of steel and timber structures.

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.s.mq.edu.au\)](https://policies.s.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Assessment Procedure](#)
- [Complaints Resolution Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies \(https://students.mq.edu.au/support/study/policies\)](https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au) and use the [search tool](#).

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/student-conduct>

## Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit [ask.mq.edu.au](http://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free [online writing and maths support](#), [academic skills development](#) and [wellbeing consultations](#).

## Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

## The Writing Centre

[The Writing Centre](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Workshops](#)
- [Chat with a WriteWISE peer writing leader](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

## Student Services and Support

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study

- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault
- [Social support including information about finances, tenancy and legal issues](#)
- [Student Advocacy](#) provides independent advice on MQ policies, procedures, and processes

## Student Enquiries

Got a question? Ask us via [AskMQ](#), or contact [Service Connect](#).

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

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Unit information based on version 2024.07 of the [Handbook](#)