



## UNSW Course Outline

# BLDG1022 Building Structures - 2024

Published on the 23 Sep 2024

## General Course Information

Course Code : BLDG1022

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 : Multimodal

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

This course introduces you to the concepts of structural systems and basic structural analysis. This course is based on the principals of Structural Mechanics and Statics. It intends to develop your understanding of relevant structural fundamentals and their applications for structural

analysis as it applies to beams, columns, and frames. Examples are used to illustrate how structures of various types support vertical and lateral loads, with emphasis on studies of structural failures. This course will help you increase your capacity for analytical and independent critical thinking. You will develop your communication skills using sketching and understanding of technical diagrams, which will enhance your understanding of structural failures.

## Relationship to Other Courses

This course introduces you to the concepts of structural systems and basic structural analysis. This course is based on the principles of structural mechanics. It intends to develop your understanding of relevant structural fundamentals and their applications for structural analysis as they apply to beams, columns, and frames. Examples are used to illustrate how structures of various types support vertical and lateral loads, with emphasis on studies of structural failures. This course will help you increase your capacity for analytical and independent critical thinking. You will develop your communication skills using sketching and understanding of technical diagrams, which will enhance your understanding of structural failures.

## Course Learning Outcomes

Course Learning Outcomes
CL01 : Describe different structural elements and fundamental concepts of structural analysis.
CL02 : Solve the equilibrium equations and draw free-body diagrams using appropriate measurement skills.
CL03 : Communicate structural elements using sketches and technical diagrams.

Course Learning Outcomes	Assessment Item
CL01 : Describe different structural elements and fundamental concepts of structural analysis.	<ul style="list-style-type: none"><li>• Quiz</li><li>• Structural analysis</li><li>• Exam</li></ul>
CL02 : Solve the equilibrium equations and draw free-body diagrams using appropriate measurement skills.	<ul style="list-style-type: none"><li>• Quiz</li><li>• Structural analysis</li><li>• Exam</li></ul>
CL03 : Communicate structural elements using sketches and technical diagrams.	<ul style="list-style-type: none"><li>• Structural analysis</li><li>• Exam</li></ul>

# Learning and Teaching Technologies

Moodle - Learning Management System

## Assessments

### Assessment Structure

Assessment Item	Weight	Relevant Dates
Quiz Assessment Format: Individual Short Extension: Yes (3 days)	20%	
Structural analysis Assessment Format: Individual Short Extension: Yes (3 days)	20%	
Exam Assessment Format: Individual	60%	

### Assessment Details

#### Quiz

##### Assessment Overview

You will undertake a multiple-choice quiz with feedback provided online upon completion.

##### Course Learning Outcomes

- CL01 : Describe different structural elements and fundamental concepts of structural analysis.
- CL02 : Solve the equilibrium equations and draw free-body diagrams using appropriate measurement skills.

##### Detailed Assessment Description

All assessments, including the quiz, will cover the content of lectures, guest lectures, all uploaded notes and slides (including all PDF and PPT files on Moodle), tutorials and workshop materials. The quiz is conducted online; the required link and details will be available on Moodle. The quiz will include both quantitative and theoretical questions to ensure that you have understood the material covered in the lectures, tutorials and Moodle.

##### 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](#).

## Structural analysis

### Assessment Overview

You will solve set of problems related to a building structure. Grading will be done against assessment criteria accompanied by written feedback.

### Course Learning Outcomes

- CLO1 : Describe different structural elements and fundamental concepts of structural analysis.
- CLO2 : Solve the equilibrium equations and draw free-body diagrams using appropriate measurement skills.
- CLO3 : Communicate structural elements using sketches and technical diagrams.

### Detailed Assessment Description

A set of problems related to a building case will be provided to students, and the students should submit the solution via Moodle. It is important that students attend the tutorial in Week 9 for clarification.

### 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.

For more information on Generative AI and permitted use please see [here](#).

## Exam

### Assessment Overview

You will undertake an exam covering structural analysis, techniques and theory.

## **Course Learning Outcomes**

- CL01 : Describe different structural elements and fundamental concepts of structural analysis.
- CL02 : Solve the equilibrium equations and draw free-body diagrams using appropriate measurement skills.
- CL03 : Communicate structural elements using sketches and technical diagrams.

## **Detailed Assessment Description**

The exam will include both quantitative and theoretical questions to check your understanding of the material covered in the lectures, tutorials and on Moodle. Its duration will be 90 minutes and it will cover the entire course content, including all presentations, materials, PDFs and PPTs up to the time of the exam. The exam is worth 60% of the final mark.

## **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.

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## **General Assessment Information**

### **Grading Basis**

Standard

# Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 9 September - 15 September	Lecture	Units of Measurement Welcome and course introduction. Identifying various structures and cases, length, mass, force, weight and vectors.
Week 2 : 16 September - 22 September	Lecture	Statics and Free-body Diagrams Types of vectors, forces, equilibrium, free body diagram and bending moment.
Week 3 : 23 September - 29 September	Assessment	Support Types and Mechanics of Materials Types of structural supports and beams, bending moment, strength of materials and material testing. Quiz (20%) due 1:00pm Wednesday
Week 4 : 30 September - 6 October	Lecture	Structural Elements and Forces Structural elements, load flow, types of forces, strain, stress and deformations.
Week 5 : 7 October - 13 October	Other	Non-teaching week Labour Day, public holiday Non-teaching week
Week 6 : 14 October - 20 October	Other	Non-teaching week
Week 7 : 21 October - 27 October	Lecture	Loads Load types, dead load (permanent), live load (imposed), examples of dead and live load estimation, wind load and quantifying their impact on structures.
Week 8 : 28 October - 3 November	Lecture	Steel Structures (Design Standards) Steel structures, standards, steel standard sections, members under compression, column buckling.
Week 9 : 4 November - 10 November	Assessment	Steel Structures (Connections) Steel connections, examples of steel design. Individual project (20%) due 11:59pm Tuesday Week 10
Week 10 : 11 November - 17 November	Lecture	Concrete Structures Concrete structures, stress/strain diagrams of concrete, reinforced concrete elements, percentages of reinforcements, design charts.
Week 11 : 18 November - 24 November	Lecture	Timber Structure and Review Basic types of timber structures and different members of the structures. Course review.

## Attendance Requirements

Please note that lecture recordings are not available for this course. Students are strongly encouraged to attend all classes and contact the Course Authority to make alternative arrangements for classes missed.

## Course Resources

### Course Evaluation and Development

We encourage and support students to maintain regular contact with the course convenor to provide informal feedback throughout the course. For specific issues or detailed feedback, please arrange a meeting with the course convenor via email.

In this course there is an option for students to provide anonymous feedback via the course's Moodle page, which is directly sent to the convenor. As a final step, students are invited to share their insights and experiences by completing the MyExperience survey. The feedback gathered each year is integral to the continuous enhancement and development of the course.

## Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
	Samad Sepasgozar		3004, Anita Building		By appointment	No	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 Plagiarism

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

beadmin@unsw.edu.au