UNSW Course Outline

ARCH1261 Construction and Structures 2 - 2024

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General Course Information

Course Code : ARCH1261
Year : 2024
Term : Term 2
Teaching Period : T2
Is a multi-term course? : No
Faculty : Faculty of Arts, Design and Architecture
Academic Unit : School of Built Environment
Delivery Mode : In Person
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

Construction and Structures 2 expands you technical understanding of materials, construction and structures through in-depth case studies and direct project applications. You will investigate and apply knowledge of reinforced concrete, steel and timber construction integrated with

architectural design. You will learn the relations between structural design, construction procedures and architectural narratives through a focus on detail design and material specification. You will also learn how to use building codes, standards and regulations applicable to medium-scale buildings.

Relationship to Other Courses

This course requires ARCH1162 Construction and Structures 1 as a prerequisite.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Appraise concrete, steel and timber construction options informed by knowledge of their physical characteristics and their assembly procedures.
CLO2 : Integrate construction and structural knowledge of concrete, steel and timber, as well as including environmental performance, into architectural design.
CLO3 : Communicate material, construction and structural information using drawings, models, specifications and schedules.
CLO4 : Apply knowledge of the relevant legislation, quality and performance standards and codes applicable to the selection of materials and construction systems.

Course Learning Outcomes	Assessment Item
CLO1 : Appraise concrete, steel and timber construction options informed by knowledge of their physical characteristics and their assembly procedures.	• Case Study
CLO2 : Integrate construction and structural knowledge of concrete, steel and timber, as well as including environmental performance, into architectural design.	• Digital Model • Construction Documentation
CLO3 : Communicate material, construction and structural information using drawings, models, specifications and schedules.	• Case Study • Digital Model • Construction Documentation
CLO4 : Apply knowledge of the relevant legislation, quality and performance standards and codes applicable to the selection of materials and construction systems.	• Digital Model • Construction Documentation

Learning and Teaching Technologies

Moodle - Learning Management System

Learning and Teaching in this course

The course will offer a combination of pre-recorded lectures (made available before the tutorials) and in-person studio tutorials. In the lectures, key concepts, preliminary analyses, and essential technical knowledge will be covered. The studio tutorials will concentrate on providing feedback sessions, designed to assist students in further and successfully developing their work for each assignment.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Case Study Assessment Format: Group	20%	Due Date: Week 2: 03 June - 09 June
Digital Model Assessment Format: Individual	35%	Due Date: Week 6: 01 July - 07 July
Construction Documentation Assessment Format: Individual	45%	Due Date: Week 12: 12 August - 18 August

Assessment Details

Case Study

Assessment Overview

In a group, you will investigate the structural behaviour of part of a building under both gravity and lateral load. Grading will be done against assessment criteria, accompanied by written feedback to the group.

Course Learning Outcomes

- CLO1 : Appraise concrete, steel and timber construction options informed by knowledge of their physical characteristics and their assembly procedures.
- CLO3 : Communicate material, construction and structural information using drawings, models, specifications and schedules.

Digital Model

Assessment Overview

You will fabricate a digital model of a portion of the structural frame of a medium size-building. Grading will be done against assessment criteria, accompanied by written feedback.

Course Learning Outcomes

- CLO2 : Integrate construction and structural knowledge of concrete, steel and timber, as well

as including environmental performance, into architectural design.
- CLO3 : Communicate material, construction and structural information using drawings, models, specifications and schedules.
- CLO4 : Apply knowledge of the relevant legislation, quality and performance standards and codes applicable to the selection of materials and construction systems.

Construction Documentation

Assessment Overview

You will produce a complete series of structural drawings following the indication of the national standards. Grading will be done against assessment criteria, accompanied by written feedback.

Course Learning Outcomes

- CLO2 : Integrate construction and structural knowledge of concrete, steel and timber, as well as including environmental performance, into architectural design.
- CLO3 : Communicate material, construction and structural information using drawings, models, specifications and schedules.
- CLO4 : Apply knowledge of the relevant legislation, quality and performance standards and codes applicable to the selection of materials and construction systems.

General Assessment Information

ASSESSMENTS

Assessment 1 : Case study report

The students will form groups to investigate the structural behaviour of part of a building under both gravity and lateral load.

Assessment 2 : Digital model

For this assessment the student will fabricate a digital model of a portion of the structural frame. The model will show how different building parts such as flooring system, roof components and cross-bracing are connected together, in compliance with material specifications and structural behaviour.

Assessment 3 : Construction Documentation Report

After designing and sizing the structural frame, the students will deliver a complete series of structural drawings following the indication of the national standards. The report will comprise structural floorplans, sections and construction detailing of a medium-size building.

USE OF AI

As this assessment task involves some planning or creative processes, you are. permitted to use software to generate initial drafts [or ideas, structures, etc]. 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 software should not be a part of your final submission. It is a good idea to keep copies of your initial drafts to show your lecturer if.there is any uncertainty about the originality of your work. Please note that your submission will be passed through an AI-text detection tool. Ifyour marker has concerns that your answer contains passages of AI-generated text 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 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.

SUPPLEMENTARY ASSESSMENT

A supplementary assessment may be offered in this course at the end of term to students whose final result is between 45 and 49. Your course convener will contact you after course results are finalised if you are eligible for the option of a supplementary assessment.

Grading Basis

Standard

Requirements to pass course

Achieve a composite mark of at least 50 out of 100.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 27 May - 2 June	Lecture	Introduction to the course. Recap fundamentals of structural principles. Explanation of assignments
	Tutorial	Students will be allocated to a case study. For assignment one, the case study needs to be structurally analysed. Tutors will discuss each case study and give you support to start the assignment.
Week 2 : 3 June - 9 June	Lecture	The structural frame. Primary, secondary and tertiary structure. The relationship between structural connections and deflected shape. The lateral stability of a structure.
	Tutorial	The student and their group need to prepare the draft of the gravity load path, and two lateral load diagrams of their case study and submit on MOODLE before the tutorial. The student will discuss this work with their tutor in class.
Week 3 : 10 June - 16 June	Lecture	The structural frame. Difference between a continuous beam and supported beam. The lateral stability of a structure. Strategies for the lateral stability of the structure. Concrete and steel.
	Tutorial	Before week 3, the student will be assigned a housing project developed up to the scale of 1:200. The student needs to prepare wireframe diagrams of the primary and secondary elements of the structure and calculate the size of the primary and secondary elements of the frame. Please submit on MOODLE before the tutorial. The student will discuss this work with their tutor in class. Note : As class falls on a Public Holiday Monday, alternative classes on Zoom on other suitable days will be arranged by the tutors.
Week 4 : 17 June - 23 June	Lecture	Developing a structural project. Strategies, opportunities, and issues. Spans and flooring relationship.
	Tutorial	Students to calculate the size of the primary and secondary elements of their frame and design the connections between elements. Please submit on MOODLE before the tutorial. The student will discuss this work with their tutor in class.
Week 5 : 24 June - 30 June	Lecture	Structural behaviour of retaining walls, rule of thumbs to size a 2- story frame in concrete and steel
	Tutorial	The student will start working on the digital model and to address the connections between structural members. Please submit on MOODLE before the tutorial. The student will discuss this work with their tutor in class.
Week 6 : 1 July - 7 July	Other	Flexibility Week: No lecture or tutorial is scheduled. Students are work on the final drawings for the second submission as the submission date will fall on the last day of Flexibility week.
Week 7 : 8 July - 14 July	Lecture	Building Classification and Fire Safety principles.
	Tutorial	Feedback session. The tutor will give feedback in relation to your Assignment 2. To succeed in the final assignment this is a very important session to attend.
Week 8 : 15 July - 21 July	Lecture	Construction methods: reinforced concrete (cast-in-situ and precast) and floorings systems.
	Tutorial	Students to prepare preliminary construction documentation. Please submit on MOODLE before the tutorial. The student will discuss this work with their tutor in class.
Week 9 : 22 July - 28 July	Lecture	Construction methods- Part A: Steel construction and floorings systems & Part B : Engineered TImber solutions
	Tutorial	Students to finalise the first draft for the structural documentation. Please submit on MOODLE before the tutorial. The student will discuss this work with their tutor in class.
Week 10 : 29 July - 4 August	Lecture	Part A: Steel construction and floorings systems. Engineered TImber solutions. Part B: Lessons learnt & conclusion
	Tutorial	Students to finalise the final draft for the structural documentation. Please submit on MOODLE before the tutorial. This will be the students' last opportunity to discuss the assignment in class.
Week 11 : 5 August - 11 August	Other	Study period : Use this time to improve the work according to the feedback received.
Week 12 : 12 August - 18 August	Assessment	Submit Final Assessment 3: Construction Documentation report (45%)

Attendance Requirements

You are expected to be regular and punctual in attendance at all classes for the School of Built Environment courses in which you are enrolled. If and where individual courses have specific attendance requirements, these will be stated in the course outline.

If you do not attend, engage, or participate in scheduled class activities, including lectures, tutorials, studios, labs, etc, you run the risk of failing a course.

If illness or unexpected and beyond your control circumstances prevent you from completing a task on time, or substantially disturb your assessment performance, you should apply for Special Consideration, as soon as practicable, accompanied by appropriate documentation.

No special consideration will be provided if you miss out on essential course information and materials, or if you miss assessment tasks and deadlines due to unexplained absences or an unapproved lack of attendance.

You may be advised by the Course Convenor to withdraw from the course if significant learning activities are missed.

Course Resources

Prescribed Resources

Prescribed Resources for this course will be available on the Moodle page.

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
Convenor	Michelle Nurman		in class on tutorial days		Appointment to be arranged via email.	No	Yes

Other Useful Information

Academic Information

Due to evolving advice by NSW Health, students must check for updated information regarding online learning for all Arts, Design and Architecture courses this term (via Moodle or course information provided).

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

- UNSW and Faculty policies and procedures;
- Student Support Services;
- Dean's List;
- review of results;
- credit transfer;
- cross-institutional study and exchange;
- examination information;
- enrolment information;
- Special Consideration in the event of illness or misadventure;
- student equity and disability;

And other essential academic information.

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

Turnitin Submission

If you encounter a problem when attempting to submit your assignment through Turnitin, please telephone External Support on 9385 3331 or email them on externalteltsupport@unsw.edu.au

Support hours are 8:00am – 10:00pm on weekdays and 9:00am – 5:00pm on weekends (365 days a year). If you are unable to submit your assignment due to a fault with Turnitin, you may apply for an extension, but you must retain your ticket number from External Support (along with any other relevant documents) to include as evidence to support your extension application. If you email External Support, you will automatically receive a ticket number, but if you telephone, you will need to specifically ask for one. Turnitin also provides updates on their system status on Twitter.

Generally, 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.

School Contact Information

beadmin@unsw.edu.au