UNSW Course Outline

# CODE1110 Computational Design Theory 1 - 2024

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## General Course Information

**Course Code :** CODE1110
**Year :** 2024
**Term :** Term 1
**Teaching Period :** T1
**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

Computational Design Theory 1 addresses architecture's digital turn and introduces you to historical and contemporary discourses. It explores theoretical concepts and ideas through architectural projects that have engaged digital technologies and computational design thinking

from the late twentieth century onwards. You will develop skills in verbal, visual, and written modes of analysis. You will critically evaluate discourses and architectural projects relating to digital and computational design technologies. You will also develop your verbal and digital communication skills to present computational knowledge and analysis.

## Course Learning Outcomes

| Course Learning Outcomes |
| --- |
| CLO1 : Demonstrate knowledge of history and theory of computational design thinking and methods in an architectural context |
| CLO2 : Explain the use of computational thinking and methods in architectural projects |
| CLO3 : Assess the ethical use of digital and computational technologies in an architectural context |
| CLO4 : Communicate computational design concepts through text, image and media based platforms |

| Course Learning Outcomes | Assessment Item |
| --- | --- |
| CLO1 : Demonstrate knowledge of history and theory of computational design thinking and methods in an architectural context | • Computational design concepts<br>• Computational design case study |
| CLO2 : Explain the use of computational thinking and methods in architectural projects | • Computational design concepts<br>• Computational design case study |
| CLO3 : Assess the ethical use of digital and computational technologies in an architectural context | • Computational design concepts<br>• Computational design case study |
| CLO4 : Communicate computational design concepts through text, image and media based platforms | • Computational design case study |

## Learning and Teaching Technologies

Moodle - Learning Management System

# Assessments

## Assessment Structure

| Assessment Item | Weight | Relevant Dates |
|---|---|---|
| Computational design concepts<br>Assessment Format: Individual | 40% | Start Date: Not Applicable<br>Due Date: 11/03/2024 01:00 PM<br>Post Date: 22/03/2024 01:00 PM |
| Computational design case study<br>Assessment Format: Individual | 60% | Due Date: 29/04/2024 05:00 PM<br>Post Date: 08/05/2024 05:00 PM |

## Assessment Details

### Computational design concepts

**Assessment Overview**

You will investigate historical and contemporary discourses related to architecture's digital turn and the computational design paradigm, and apply theories and concepts to situate, compare, and explain the significance of selected design project examples. You will submit your analysis as a mixed-media poster and verbal presentation. Feedback will be given through the learning management system and the level of achievement will be indicated against the assignment criteria rubric as well as a section for additional comments. Feedback will also be given verbally in class where applicable.

**Course Learning Outcomes**

- CLO1 : Demonstrate knowledge of history and theory of computational design thinking and methods in an architectural context
- CLO2 : Explain the use of computational thinking and methods in architectural projects
- CLO3 : Assess the ethical use of digital and computational technologies in an architectural context

**Assessment information**

Detailed Assessment description will be provided on Moodle

### Computational design case study

**Assessment Overview**

You will create a presentation that explores a computational design theme(s) through the conceptual and spatial analysis of a relevant exemplar design project. You will submit your analysis as a mixed-media video presentation. Feedback will be given through the learning management system and the level of achievement will be indicated against the assignment

criteria rubric as well as a section for additional comments. Feedback will also be given verbally in class where applicable.

**Course Learning Outcomes**

- CLO1 : Demonstrate knowledge of history and theory of computational design thinking and methods in an architectural context
- CLO2 : Explain the use of computational thinking and methods in architectural projects
- CLO3 : Assess the ethical use of digital and computational technologies in an architectural context
- CLO4 : Communicate computational design concepts through text, image and media based platforms

**Detailed Assessment Description**

Detailed Assessment description will be provided on Moodle

**Assessment information**

Detailed Assessment description will be provided on Moodle

# General Assessment Information

Detailed Assessment description will be provided on Moodle.

**Grading Basis**

Standard

# Course Schedule

| Teaching Week/Module | Activity Type | Content |
|---|---|---|
| Week 1 : 12 February - 18 February | Lecture | What is Computational Design? |
| | Tutorial | Activity: Reading and concept definitions<br>Activity: Introduction to Assignment 1 |
| Week 2 : 19 February - 25 February | Lecture | Architectural Computing |
| | Tutorial | Activity: Reading and discussion<br>Activity: How to analyse and diagram architecture |
| Week 3 : 26 February - 3 March | Lecture | Parameter-based and Ruled-based Design |
| | Tutorial | Activity: Reading and discussion<br>Activity: Analysing the parametric principles of case studies<br>Activity: Draft Assignment 1 poster layout |
| Week 4 : 4 March - 10 March | Lecture | Performance-based Design |
| | Tutorial | Activity: Reading and discussion<br>Activity: Analysing the performance-based design within case studies |
| Week 5 : 11 March - 17 March | Lecture | Design and Fabrication - Simulation and Data Analysis |
| | Tutorial | Activity: Reading and discussion<br>Activity: Simulation and data analysis techniques of case studies<br>Activity: Assignment 1 poster presentations<br>Activity: Assignment 2 introduction |
| Week 6 : 18 March - 24 March | Other | No Lecture - Flexiblity week |
| | Other | No Tutorial - Flexibility week |
| Week 7 : 25 March - 31 March | Lecture | Design and Fabrication - Additive Manufacturing |
| | Tutorial | Activity: Reading and discussion<br>Activity: Analysing nonstandard design methods of case studies<br>Activity: Assignment 2 preliminary presentation |
| Week 8 : 1 April - 7 April | Other | No Lecture |
| | Other | No Tutorial |
| Week 9 : 8 April - 14 April | Lecture | Material Computation - New Materials |
| | Tutorial | Activity: Reading and discussion<br>Activity: Mapping new material development techniques through case studies |
| Week 10 : 15 April - 21 April | Lecture | Material Computation - Living Materials |
| | Tutorial | Activity: Assignment 2 presentations |

## 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

## 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 |
|---|---|---|---|---|---|---|---|
| | Farnaz Fattahi | | | | | Yes | 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