



## UNSW Course Outline

# CODE2120 Computational Design 4 (System) - 2024

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## General Course Information

Course Code : CODE2120

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 : 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 4 investigates the application of computational thinking and methods to data, formats, and modelling to create optimisation and decision-support workflows and systems for design processes. You will apply advanced skills in visual programming and text-

based programming to solve design technology interoperability problems and create systems that can address UN Sustainable Development Goals.

## Relationship to Other Courses

CODE2120 - Computational Design 4 (System) is the fourth core course for the Computational Design Discipline.

## Course Learning Outcomes

Course Learning Outcomes
CL01 : Analyse case studies of computational thinking and methods used to create optimisation and design decision-support tools and systems
CL02 : Apply computational thinking and methods to data, formats, and modelling to create decision-support systems for built and urban environment design processes
CL03 : Demonstrate advanced programming skills to address design technology interoperability problems.

Course Learning Outcomes	Assessment Item
CL01 : Analyse case studies of computational thinking and methods used to create optimisation and design decision-support tools and systems	• Understanding interoperability
CL02 : Apply computational thinking and methods to data, formats, and modelling to create decision-support systems for built and urban environment design processes	• Developing design decision-support system
CL03 : Demonstrate advanced programming skills to address design technology interoperability problems.	• Understanding interoperability • Developing design decision-support system

## Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams

# Assessments

## Assessment Structure

Assessment Item	Weight	Relevant Dates
Understanding interoperability Assessment Format: Individual	40%	Start Date: 09/09/2024 12:00 AM Due Date: Week 4: 30 September - 06 October
Developing design decision-support system Assessment Format: Individual	60%	Start Date: 23/09/2024 12:00 AM Due Date: Week 10: 11 November - 17 November

## Assessment Details

### Understanding interoperability

#### Assessment Overview

You will prepare an illustrated report that identifies and investigates data sets that can be used to address interoperability problems in design technology workflows and systems. Marking will be done against assessment criteria, accompanied by written feedback.

#### Course Learning Outcomes

- CL01 : Analyse case studies of computational thinking and methods used to create optimisation and design decision-support tools and systems
- CL03 : Demonstrate advanced programming skills to address design technology interoperability problems.

#### Detailed Assessment Description

##### **Non-Marked Presentation:**

In addition to the report, you will give a short (max 5 minute) non-marked presentation to the class. This presentation should summarise your findings and provide a visual overview of the data sets and solutions you have explored. The presentation is an opportunity to practise communicating technical information effectively and receive informal feedback from peers.

#### Assessment Length

No more than 10 pages in length

#### Assignment submission Turnitin type

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

## Generative AI Permission Level

### **Assistance with Attribution**

This assessment requires you to write/create a first iteration of your submission yourself. You are then permitted to use generative AI tools, software or services to improve your submission in the ways set out below.

Any output of generative AI tools, software or services that is used within your assessment must be attributed with full referencing.

If outputs of generative AI tools, software or services form part of your submission and are not appropriately attributed, your Convenor will determine whether the omission is significant. If so, you may be asked to explain your submission. 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](#).

### **Developing design decision-support system**

#### Assessment Overview

You will apply computational design thinking and methods to create a decision-support system for the design process that addresses a specific UN Sustainable Development Goal. Marking will be done against assessment criteria, accompanied by written feedback.

#### Course Learning Outcomes

- CL02 : Apply computational thinking and methods to data, formats, and modelling to create decision-support systems for built and urban environment design processes
- CL03 : Demonstrate advanced programming skills to address design technology interoperability problems.

#### Detailed Assessment Description

##### **Non-Marked Presentation:**

At the conclusion of the assessment, you will present your final decision-support system to the class in a non-marked presentation. This presentation should showcase the functionality, design, and application of your system, allowing you to articulate the design process and decisions you made. It is also an opportunity to receive informal feedback from your peers.

#### Assessment Length

No more than 15 pages in length.

### **Assignment submission Turnitin type**

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

### **Generative AI Permission Level**

#### **Assistance with Attribution**

This assessment requires you to write/create a first iteration of your submission yourself. You are then permitted to use generative AI tools, software or services to improve your submission in the ways set out below.

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## **General Assessment Information**

### **Grading Basis**

Standard

### **Requirements to pass course**

To pass the course you must achieve a composite mark of at least 50 out of 100.

# Course Schedule

Teaching Week/Module	Activity Type	Content
Week 0 : 2 September - 8 September	Activity	No activity.
Week 1 : 9 September - 15 September	Lecture	Introduction to Computational Design and Built Environment Apps
	Tutorial	- Brainstorming workshop on potential app ideas - Introduction to coding tools
Week 2 : 16 September - 22 September	Lecture	Principles of Interoperability in Design Systems for the Built Environment
	Tutorial	- Exploration of different design tools and platforms - Identifying interoperability challenges in current design workflows - Coding demonstration
Week 3 : 23 September - 29 September	Lecture	Data Sets and Interoperability Solutions
	Lecture	- Analysis of data sets relevant to built environment processes - Consultation for Assessment 1
Week 4 : 30 September - 6 October	Lecture	Designing Support Systems I
	Tutorial	- Presentations for Assessment 1 - Brainstorming and planning for Assessment 2 - Coding demonstration
	Assessment	Assessment 1 Due – In-class presentations (non-marked) and submission of illustrated report
Week 5 : 7 October - 13 October	Lecture	Designing Support Systems II
	Tutorial	- Conceptualising the design decision support system - Creating system workflow diagrams
Week 6 : 14 October - 20 October	Activity	Flexibility Week – No Class
Week 7 : 21 October - 27 October	Lecture	Integration and Deployment of Systems
	Tutorial	- Tutorial on coding and algorithms for decision support systems - Work on prototypes of decision support systems
Week 8 : 28 October - 3 November	Lecture	Sustainable Development Goals through Design
	Tutorial	- Addressing UN SDGs through system design - Work on prototypes - Code demonstration
Week 9 : 4 November - 10 November	Lecture	Deployment and User Testing
	Tutorial	- Deploying systems - Peer review and testing of initial systems
Week 10 : 11 November - 17 November	Lecture	Final Presentations and Demonstrations
	Tutorial	- Presentations for Assessment 2. - Peer review testing.
	Assessment	Assessment 2 Due – In-class presentations (non-marked) and submission of illustrated report

## 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.

## General Schedule Information

Each week will consist of either a 1-hour lecture or demonstration of code, followed by a 3-hour tutorial.

## 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
Convenor	Daniel Yu		ABL H13		By appointment, please email	Yes	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

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