



UNSW Course Outline

BENV2270 Construction Robotics - 2024

Published on the 28 May 2024

General Course Information

Course Code : BENV2270

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 Robotics prepares you for engagement with the automation of the construction industry. It introduces cutting-edge robotic technology and principles of robotic construction for both on-site and off-site contexts. You will investigate existing case examples of robotic

automation in the construction sector and examine relevant concepts and technical methods in relation to ethical, economic, and social issues.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Assess standards, policies and ethics relating to the application of robots in the construction industry.
CLO2 : Analyse the principles of robotics applications in on-site and off-site settings.
CLO3 : Investigate opportunities for the application of robotics in the construction industry.
CLO4 : Communicate robotic technology ideas and information through verbal and multimedia formats.

Course Learning Outcomes	Assessment Item
CLO1 : Assess standards, policies and ethics relating to the application of robots in the construction industry.	<ul style="list-style-type: none">• Test• Opportunities and Challenges for Robotic Fabrication
CLO2 : Analyse the principles of robotics applications in on-site and off-site settings.	<ul style="list-style-type: none">• Robotic Construction Case Study• Test• Opportunities and Challenges for Robotic Fabrication
CLO3 : Investigate opportunities for the application of robotics in the construction industry.	<ul style="list-style-type: none">• Robotic Construction Case Study• Opportunities and Challenges for Robotic Fabrication
CLO4 : Communicate robotic technology ideas and information through verbal and multimedia formats.	<ul style="list-style-type: none">• Robotic Construction Case Study• Opportunities and Challenges for Robotic Fabrication

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams

Learning and Teaching in this course

The course is delivered through lectures and tutorials. Lectures develop key ideas and approaches relevant to each week's content focus and support your engagement with tutorial content. Tutorials refine your understanding of lecture content and support your application of this understanding to assessment tasks.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Test Assessment Format: Individual	30%	Start Date: Not Applicable Due Date: Week 4: 17 June - 23 June
Robotic Construction Case Study Assessment Format: Individual	20%	Start Date: Not Applicable Due Date: Week 7: 08 July - 14 July
Opportunities and Challenges for Robotic Fabrication Assessment Format: Individual	50%	Due Date: Week 10: 29 July - 04 August

Assessment Details

Test

Assessment Overview

You will be tested on your knowledge of topics covered in the course. Feedback will be provided in the form of the correct answers.

Course Learning Outcomes

- CLO1 : Assess standards, policies and ethics relating to the application of robots in the construction industry.
- CLO2 : Analyse the principles of robotics applications in on-site and off-site settings.

Detailed Assessment Description

Detailed assessment brief can be found on Moodle

Assignment submission Turnitin type

Not Applicable

Robotic Construction Case Study

Assessment Overview

You will deliver a multimedia and verbal presentation that investigates and explains a robotic construction process. Grading will be done against assessment criteria accompanied by written feedback. Verbal feedback will also be given in tutorials.

Course Learning Outcomes

- CLO2 : Analyse the principles of robotics applications in on-site and off-site settings.
- CLO3 : Investigate opportunities for the application of robotics in the construction industry.
- CLO4 : Communicate robotic technology ideas and information through verbal and

multimedia formats.

Detailed Assessment Description

A detailed Assessment Brief can be found on Moodle

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

Opportunities and Challenges for Robotic Fabrication

Assessment Overview

You will produce a report that critically reflects on current building construction methods and processes, and investigates the opportunities and limitations of robotic fabrication. Grading will be done against assessment criteria accompanied by written feedback. Verbal feedback will also be given in tutorials.

Course Learning Outcomes

- CLO1 : Assess standards, policies and ethics relating to the application of robots in the construction industry.
- CLO2 : Analyse the principles of robotics applications in on-site and off-site settings.
- CLO3 : Investigate opportunities for the application of robotics in the construction industry.
- CLO4 : Communicate robotic technology ideas and information through verbal and multimedia formats.

Detailed Assessment Description

A detailed Assessment Brief can be found on Moodle

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

General Assessment Information

Acceptable use of Generative AI in this course:

Planning assistance

For assessment tasks in this course, you may use AI-based software to research and prepare prior to writing your assessment. You are permitted to use standard editing and referencing functions in word processing software in the creation of your submission (note: this is limited to spelling and grammar checking and reference citation generation). You must not use any functions that generate or paraphrase or translate passages of text, whether based on your own work or not. Please note that your submission will be passed through an AI-generated text

detection tool. If your marker has concerns that your answer contains passages of AI-generated text you may be asked to explain 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.

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 0 : 20 May - 26 May	Reading	Read through course outline
Week 1 : 27 May - 2 June	Lecture	Introduction to Construction Robotics
	Tutorial	Types of Automation and Robotics
Week 2 : 3 June - 9 June	Lecture	Social Limitations of Robotic Applications in the AEC industry
	Tutorial	Analysis of contemporary applications of robotics
Week 3 : 10 June - 16 June	Other	Public Holiday: No class this week
Week 4 : 17 June - 23 June	Lecture	Guest Lecture
	Tutorial	Introduction to Case Studies
Week 5 : 24 June - 30 June	Lecture	Cost constraints and opportunities of Robots in the AEC industry.
	Tutorial	Case Studies
Week 6 : 1 July - 7 July	Other	No Class: Flexibility Week
Week 7 : 8 July - 14 July	Lecture	Technical and Software constraints and opportunities of Robots in the AEC industry
	Tutorial	In class Assessment 2 Presentations.
Week 8 : 15 July - 21 July	Lecture	Guest Lecture
	Tutorial	Assessment 3 Introduction
Week 9 : 22 July - 28 July	Lecture	The Future of Construction Robotics
	Tutorial	Preparing for assessment 3
Week 10 : 29 July - 4 August	Assessment	No Lecture Assessment 3 in class 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

Prescribed Resources

All resources are listed and available in the relevant week's tab on Moodle.

Recommended Resources

All resources are listed and available in the relevant week's tab on Moodle.

Additional Costs

There are no additional costs for this course

Course Evaluation and Development

Feedback to Students: Students will receive frequent verbal feedback from peers and the instructor in class. Each assessment feedback includes rubric grades and written comments.

Feedback from Students: 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.

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	Kate Dunn		Room 4014, Anita B. Lawrence Centre (H13)		please email me for an appointment	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 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

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

badmin@unsw.edu.au