UNSW Course Outline

MTRN3020 Modelling and Control of Mechatronic Systems - 2024

Published on the 08 Feb 2024

General Course Information

Course Code : MTRN3020
Year : 2024
Term : Term 1
Teaching Period : T1
Is a multi-term course? : No
Faculty : Faculty of Engineering
Academic Unit : School of Mechanical and Manufacturing Engineering
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 subject teaches the student how to design and develop a control system in discrete-time domain to be used in motion control systems. Material covered includes; Revision of continuous-time control systems and design tools such as root locus, bode methods and Laplace transform.

Starred Laplace transforms, z-transforms. Discretising continuous-time systems. Stability, speed of response and accuracy. Controller design using; root-locus method, direct and indirect analytical methods and bode methods. Observability, controllability. State estimators and design of observers.

The experimental content and the associated video content will help the students appreciate how control systems work. In a group setting, students will be able to observe, how controllers of their peers operate with different controller parameters demonstrating different behaviours.

Relationship to Other Courses

This course relates to two other courses. First, the content relates to the MMAN3200 Linear Systems and Control. MMAN3200 gives a good overview of classical control systems theory in continuous-time domain. It gives the student a good exposure to the theory behind the mathematical representation of physical systems and highlights the importance of Laplace Transforms in designing control systems. MMAN3200 also presents various tools one can use in designing control system.

Modern day control systems are largely implemented on digital computers, hence it is essential to migrate from continuous-time systems to discrete-time systems. There are substantial changes to the way the control systems are designed when the continuous time controllers become discrete-time controllers. This course (MTRN3020) takes the student through the transition from continuous-time linear time invariant systems to discrete-time linear time invariant systems enable them to design computer controlled systems.

Secondly, MTRN3020 also contributes to MTRN9400 Control of Robotic Systems. Extracting from the MTRN9400 course description, by following MTRN9400, the "students are expected to learn the fundamental concepts and core principles of nonlinear control theory and Lyapunov stability, adaptive control and robust control, and are expected to learn how to control the motion of different robotic systems such as rigid manipulators, unicycle robots and quadrotors using nonlinear controllers". As such, the students move on to nonlinear systems starting from linear time-invariant system.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Develop an understanding of the purpose of control systems and their use
CLO2 : Understand that a plant is given and a control system is to be designed to satisfy performance specifications
CLO3 : Be thoroughly conversant with the available design methodologies and have the ability to choose the appropriate design methods to enable the control system design
CLO4 : Understand the control system application environment and be able to implement the designed control systems.

Course Learning Outcomes	Assessment Item
CLO1 : Develop an understanding of the purpose of control systems and their use	• Inverted Pendulum Experiment • Speed Control Experiment • Major Quiz: Part 3 • Position Control Experiment • Major Quiz Part 2
CLO2 : Understand that a plant is given and a control system is to be designed to satisfy performance specifications	• Inverted Pendulum Experiment • Speed Control Experiment • Major Quiz: Part 3 • Position Control Experiment • Major Quiz Part 2
CLO3 : Be thoroughly conversant with the available design methodologies and have the ability to choose the appropriate design methods to enable the control system design	• Major Quiz Part 1 • Speed Control Experiment • Major Quiz: Part 3 • Position Control Experiment
CLO4 : Understand the control system application environment and be able to implement the designed control systems.	• Major Quiz Part 1 • Inverted Pendulum Experiment • Major Quiz Part 2 • Speed Control Experiment • Major Quiz: Part 3 • Position Control Experiment

Learning and Teaching Technologies

Moodle - Learning Management System | EdStem

Learning and Teaching in this course

This course is primarily a course on Control Systems, in particular, computer controlled systems. It introduces the student to the digital or discrete-time control systems and then present the theories and the designs tools that can be used to design discrete-time control systems. The

students will use Matlab extensively during the tutorial classes and during the design of the contollers for the inverted pendulum system, the speed control system and the position control system.

The lecture content is presented by way of pre-recorded video lectures a set of lecture notes split into the various topics presented in the videos. The video lecture contrnt will not be repeated during the lecture times. Instead, the lecture time will be used for problem solving. The students may request further clarifications of the video lectures or the lecture notes during the sheduled lecture times.

The knowledge assessments will be done through the three parts of the Major Quiz. Sample quizzes will be provided to enable the students to enhance their knowledge.

Other Professional Outcomes

The experimental content and the associated video content will help the students appreciate how control systems work. In a group setting, students will be able to observe, how controllers of their peers operate with different controller parameters demonstrating different behaviours.

Additional Course Information

The students who come to follow this course are required to have prior knowledge from MMAN3200 Linear Systems and Control or a similar course.

This is a 6 unit-of-credit (UoC) course and involves 3 hours per week (h/w) of scheduled online contact.The normal workload expectations of a student are approximately 25 hours per term for each UOC, including class contact hours, other learning activities, preparation and time spent on all assessable work.You should aim to spend about 15 h/w on this course. The additional time should be spent in making sure that you understand the lecture material, completing the set assignments, further reading, and revising for any examinations.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Inverted Pendulum Experiment Assessment Format: Individual	10%	Start Date: Not Applicable Due Date: 25/03/2024 11:59 PM Post Date: 12/02/2024 12:00 AM
Major Quiz Part 1 Assessment Format: Individual	10%	Start Date: 08/03/2024 06:10 PM Due Date: 08/03/2024 06:42 PM
Speed Control Experiment Assessment Format: Individual	15%	Due Date: 12/04/2024 11:59 PM
Major Quiz: Part 3 Assessment Format: Individual	20%	Start Date: 19/04/2024 06:05 PM Due Date: 19/04/2024 06:52 PM
Position Control Experiment Assessment Format: Individual	20%	Due Date: 26/04/2024 11:59 PM
Major Quiz Part 2 Assessment Format: Individual	25%	Start Date: 05/04/2024 06:05 PM Due Date: 05/04/2024 07:02 PM

Assessment Details

Inverted Pendulum Experiment

Assessment Overview

Assessment length: 1 hour lab time

A laboratory report must be submitted.

The students are expected bring a controller design by way of a set of numbers. The design procedure will be described in detail during the lectures. The experiment is about using a controller to balance an inverted pendulum. A detailed animation of this experiment will be made available.

Assessment criteria

The assessment criteria will be explained in the laboratory instruction sheet. A marking rubric will also be provided.

Course Learning Outcomes

- CLO1 : Develop an understanding of the purpose of control systems and their use
- CLO2 : Understand that a plant is given and a control system is to be designed to satisfy performance specifications
- CLO4 : Understand the control system application environment and be able to implement the

designed control systems.

Detailed Assessment Description

Please refer to the laboratory instruction document that will be made available on Moodle for this experiment. The marks breakdown is presented in the laboratory instruction document. Furthermore, a marking rubric will be made available on Turnitin submission site.

Assessment Length

8 - 12 pages of laboratory report.

Submission notes

A laboratory report must be submitted.

Assessment information

The marking rubric will be made available on the turnitin site.

Criteria with marking rubric

Criteria: Please refer to the rubric that is made available in the Turnitin submission site.

Fail - Please refer to the rubric that is made available in the Turnitin submission site.

Pass - Please refer to the rubric that is made available in the Turnitin submission site.

Credit - Please refer to the rubric that is made available in the Turnitin submission site.

Distinction - Please refer to the rubric that is made available in the Turnitin submission site.

High Distinction - Please refer to the rubric that is made available in the Turnitin submission site.

Assignment submission Turnitin type

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

Major Quiz Part 1

Assessment Overview

Assessment length: 30 minutes

This is an online quiz that will be timed and will be held online at a specified time. A maximum of

10 marks will be awarded for this quiz.

The assessment is an online quiz that is timed. The marks for each question will be mentioned in the questions themselves. Each mark awarded during this quiz is equivalent to a mark in the final grade.

Course Learning Outcomes

- CLO3 : Be thoroughly conversant with the available design methodologies and have the ability to choose the appropriate design methods to enable the control system design
- CLO4 : Understand the control system application environment and be able to implement the designed control systems.

Detailed Assessment Description

This quiz can be located under Week 04 content of the Moodle site. Please read carefully the quiz conditions mentioned for this quiz.

Assessment Length

30 minutes

Submission notes

This quiz is compulsory. All attempts of the quiz will be automatically submitted at the conclusion of the quiz time period.

Assessment information

No additional information.

Criteria with marking rubric

Criteria: The students are required to answer each question in the quiz correctly.

Fail -

Pass -

Credit -

Distinction -

High Distinction -

Assignment submission Turnitin type

Not Applicable

Speed Control Experiment

Assessment Overview

Assessment length: 1 hour

The students must submit the laboratory report.

This experiment is about controlling the speed of a motor that drives a system that is subjected to variable load. Despite the load changes, the controller designed by individual students should keep the speed of the motor constant. This experiment will help students to understand control system development and implementation. A detailed animation of the experiment will be made available.

Assessment criteria

The assessment criteria will be explained in the laboratory instruction sheet. A marking rubric will also be made available.

Course Learning Outcomes

- CLO1 : Develop an understanding of the purpose of control systems and their use
- CLO2 : Understand that a plant is given and a control system is to be designed to satisfy performance specifications
- CLO3 : Be thoroughly conversant with the available design methodologies and have the ability to choose the appropriate design methods to enable the control system design
- CLO4 : Understand the control system application environment and be able to implement the designed control systems.

Detailed Assessment Description

Please refer to the laboratory instruction document that will be made available on Moodle for this experiment. The marks breakdown is presented in the laboratory instruction document. Furthermore, a marking rubric will be made available on Turnitin submission site.

Assessment Length

8 - 12 pages of laboratory report.

Submission notes

The students must submit the laboratory report.

Assessment information

The marking rubric will be made available on the turnitin site.

Assignment submission Turnitin type

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

Major Quiz: Part 3

Assessment Overview

Assessment length: 45 minutes

This is an online quiz that will be timed and will be held online at a specified time. A maximum of 20 marks will be awarded for this quiz.

Assessment criteria

The marks for each question will be mentioned in the questions themselves. Each mark awarded during this quiz is equivalent to a mark in the final grade.

Course Learning Outcomes

- CLO1 : Develop an understanding of the purpose of control systems and their use
- CLO2 : Understand that a plant is given and a control system is to be designed to satisfy performance specifications
- CLO3 : Be thoroughly conversant with the available design methodologies and have the ability to choose the appropriate design methods to enable the control system design
- CLO4 : Understand the control system application environment and be able to implement the designed control systems.

Detailed Assessment Description

This quiz can be located under Week 10 content of the Moodle site. Please read carefully the quiz conditions mentioned for this quiz.

Submission notes

This quiz is compulsory. All attempts of the quiz will be automatically submitted at the conclusion of the quiz time period.

Assignment submission Turnitin type

Not Applicable

Position Control Experiment

Assessment Overview

Start date: 1 hour during your scheduled lab time
A laboratory report must be submitted.

This experiment is about positioning a mechanical linkage at a set of desired positions. A complete animation of this experiment will be made available.

Assessment criteria

The laboratory specification will have clear guideline about the marking criteria. A marking rubric will also be made available.

Course Learning Outcomes

- CLO1 : Develop an understanding of the purpose of control systems and their use
- CLO2 : Understand that a plant is given and a control system is to be designed to satisfy performance specifications
- CLO3 : Be thoroughly conversant with the available design methodologies and have the ability to choose the appropriate design methods to enable the control system design
- CLO4 : Understand the control system application environment and be able to implement the designed control systems.

Detailed Assessment Description

Please refer to the laboratory instruction document that will be made available on Moodle for this experiment. The marks breakdown is presented in the laboratory instruction document. Furthermore, a marking rubric will be made available on Turnitin submission site.

Assessment Length

8 - 12 pages of laboratory report.

Submission notes

A laboratory report must be submitted.

Assessment information

The marking rubric will be made available on the turnitin site.

Assignment submission Turnitin type

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

Major Quiz Part 2

Assessment Overview

Assessment length: 55 minutes

This is an online quiz that will be timed. A maximum of 25 marks will be awarded for this quiz.

The marks for each question will be mentioned in the questions themselves. Each mark awarded during this quiz is equivalent to a mark in the final grade.

Course Learning Outcomes

- CLO1 : Develop an understanding of the purpose of control systems and their use
- CLO2 : Understand that a plant is given and a control system is to be designed to satisfy performance specifications
- CLO4 : Understand the control system application environment and be able to implement the designed control systems.

Detailed Assessment Description

This quiz can be located under Week 08 content of the Moodle site. Please read carefully the quiz conditions mentioned for this quiz.

Submission notes

This quiz is compulsory. All attempts of the quiz will be automatically submitted at the conclusion of the quiz time period.

Assignment submission Turnitin type

Not Applicable

General Assessment Information

Grading Basis

Standard

Requirements to pass course

Obtain a course total of more than 50 out of 100 available marks.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 12 February - 18 February	Lecture	In person lecture: Introduction and How Control Systems Work Course introduction, Qualitative analysis of a control system
Week 2 : 19 February - 25 February	Lecture	Video Lecture: Modelling, Transfer Functions and State Space Representation Mathematical modelling and its representation in transfer function and state space form. Problem solving and clarification sessions during the lectuer time.
Week 3 : 26 February - 3 March	Lecture	Video Lecture: Root Locus and Introduction to Discrete-Time Systems The s-plane, meaning of Laplace variable s for physical systems and root locus, and Computer controlled systems, introduction to discrete-time control systems Problem solving and clarification sessions during the lectuer time.
Week 4 : 4 March - 10 March	Lecture	Video Lecture: z-transforms and Discrete-Time Transfer Functions Migrating from Laplace transforms to z-transforms, discrete-time transfer functions Problem solving and clarification sessions during the lecture time.
	Laboratory	The Inverted Pendulum Experiment: This will be held in Room 212 of Willis Annex. For laboratory class time, please refer to your academic timetable.
	Assessment	Major Quiz Part 1 will be held on Friday of this week. Please refer to the Assessments schedule in the course outline as well as the Moodle content under Week 04.
Week 5 : 11 March - 17 March	Lecture	Video Lecture: Stability and Discrete Equivalents of Continuous-time Systems Characteristic equation, stability of discrete-time systems and the z-plane ,and Discretization of transfer functions and state space systems Problem solving and clarification sessions during the lecture time.
Week 6 : 18 March - 24 March	Lecture	Flexibility week. No classes
Week 7 : 25 March - 31 March	Assessment	The inverted pendulum experiment report must be submitted on Monday of this week. Please refer to submission times in the course outline and the Moodle site.
	Lecture	Video Lecture: Direct Design: Discrete Controller Design Using Root Locus Pole-zero cancellation and controller design using root locus. Problem solving and clarification sessions during the lecture time.
	Laboratory	The Speed Control experiment: This will be held in Room 212 of Willis Annex. For laboratory class time, please refer to your academic timetable.
Week 8 : 1 April - 7 April	Lecture	Video Lecture: Direct Design: Discrete Controller Design Using Direct Analytical Method The use of direct analytical design method, also called Ragazzini's method. Problem solving and clarification sessions during the lecture time.
	Assessment	Major Quiz Part 2 will be held on Friday of this week. Please refer to the Assessments schedule in the course outline as well as the Moodle content under Week 08.
Week 9 : 8 April - 14 April	Lecture	Video Lecture: Indirect Design: Discrete Controller Design Using Bode Method Designing controllers using continuous-time frequency response methods and then obtaining their discrete equivalents. Problem solving and clarification sessions during the lecture time.
	Laboratory	The Position Control Experiment: This will be held in Room 212 of Willis Annex. For laboratory class time, please refer to your academic timetable.
	Assessment	The Speed Control experiment report must be submitted on Friday of this week. Please refer to submission times in the course outline and the Moodle site.
Week 10 : 15 April - 21 April	Lecture	Video Lecture: State Feedback Controllers and Observers Design of state feedback controllers and state observers. Problem solving and clarification sessions during the lecture time.
	Assessment	Major Quiz Part 3 will be held on Friday of this week. Please refer to the Assessments schedule in the course outline as well as the Moodle content under Week 10.
Week 11 : 22 April - 28 April	Assessment	The Position Control Experiment report must be submitted on Friday of this week. Please refer to submission times in the course outline and the Moodle

		site.

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

General Schedule Information

This course schedule is also available on the Moodle site for this course. The lectures for this course will be pre-recorded. The students are expected to watch the video recordings and when needed should follow the lecture notes provided for each topic. The scheduled lecture times will be used for problem solving. These can either be lecturer provided problems for students to solve or the problems students wish to discuss including further explanation of the lecture notes or the video content.

Course Resources

Prescribed Resources

Pre recorded lecture videos and lecture notes will be made available on Moodle.

Recommended Resources

The following text books may be used for reference.

1. Dorsey, J., “Continuous and Discrete Control Systems”, McGraw Hill2. Golten, J. and A. Verwer, “Control System Design and Simulation” McGraw Hill

Additional Costs

No additional costs.

Course Evaluation and Development

Feedback on the course is gathered periodically using various means, including the UNSW myExperience process, informal discussion in the final class for the course, and the School’s Student/Staff meetings. Your feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

In this course, recent improvements resulting from student feedback include complete digital uplifting of the course.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Jay Katupitiya		510E Ainsworth Building	93854096	Through appointments	No	Yes
Lecturer	Jay Katupitiya		Ainsworth 510E	93854096	Available for consultation during the lecture time slots as these will be problem solving times.	No	No

Other Useful Information

Academic Information

I. Special consideration and supplementary assessment

If you have experienced an illness or misadventure beyond your control that will interfere with your assessment performance, you are eligible to apply for Special Consideration prior to, or within 3 working days of, submitting an assessment or sitting an exam.

Please note that UNSW has a Fit to Sit rule, which means that if you sit an exam, you are declaring yourself fit enough to do so and cannot later apply for Special Consideration.

For details of applying for Special Consideration and conditions for the award of supplementary assessment, please see the information on UNSW's Special Consideration page.

II. Administrative matters and links

All students are expected to read and be familiar with UNSW guidelines and polices. In particular, students should be familiar with the following:

- Attendance
- UNSW Email Address
- Special Consideration
- Exams
- Approved Calculators
- Academic Honesty and Plagiarism
- Equitable Learning Services

III. Equity and diversity

Those students who have a disability that requires some adjustment in their teaching or learning

environment are encouraged to discuss their study needs with the course convener prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equitable Learning Services. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

IV. Professional Outcomes and Program Design

Students are able to review the relevant professional outcomes and program designs for their streams by going to the following link: https://www.unsw.edu.au/engineering/student-life/student-resources/program-design.

Note: This course outline sets out the description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle or your primary learning management system (LMS) should be consulted for the up-to-date class descriptions. If there is any inconsistency in the description of activities between the University timetable and the Course Outline/Moodle/LMS, the description in the Course Outline/Moodle/LMS applies.

Academic Honesty and Plagarism

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW students have a responsibility to adhere to this principle of academic integrity. Plagiarism undermines academic integrity and is not tolerated at UNSW. *Plagiarism at UNSW is defined as using the words or ideas of others and passing them off as your own.*

Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. UNSW has produced a website with a wealth of resources to support students to understand and avoid plagiarism, visit: student.unsw.edu.au/plagiarism. The Learning Centre assists students with understanding academic integrity and how not to plagiarise. They also hold workshops and can help students one-on-one.

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in an honours thesis or contract cheating) even suspension from the university. The Student Misconduct Procedures are available here:

www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Submission of Assessment Tasks

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of five percent (5%) of the maximum mark possible for that assessment item, per calendar day.

The late penalty is applied per calendar day (including weekends and public holidays) that the assessment is overdue. There is no pro-rata of the late penalty for submissions made part way through a day. This is for all assessments where a penalty applies.

Work submitted after five days (120 hours) will not be accepted and a mark of zero will be awarded for that assessment item.

For some assessment items, a late penalty may not be appropriate. These will be clearly indicated in the course outline, and such assessments will receive a mark of zero if not completed by the specified date. Examples include:

- Weekly online tests or laboratory work worth a small proportion of the subject mark;
- Exams, peer feedback and team evaluation surveys;
- Online quizzes where answers are released to students on completion;
- Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date; and,
- Pass/Fail assessment tasks.

Faculty-specific Information

Engineering Student Support Services – The Nucleus - enrolment, progression checks, clash requests, course issues or program-related queries

Engineering Industrial Training – Industrial training questions

UNSW Study Abroad – study abroad student enquiries (for inbound students)

UNSW Exchange – student exchange enquiries (for inbound students)

UNSW Future Students – potential student enquiries e.g. admissions, fees, programs, credit transfer

Phone

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

School-specific Information

Short Extensions

Short extensions are not currently applicable to Mechanical and Manufacturing Engineering Courses.

Review of Results

The purpose of a review of results is if there was a marking error. Review of results is for when you have cause to believe that there is a marking error. Review of Results cannot be used to get feedback. If you would like feedback for assessments prior to the final exam, you are welcome to contact the course convenor directly. No feedback will be provided on final exams.

Use of AI

The use of AI is prohibited unless explicitly permitted by the course convenor. Please respect this and be aware that penalties will apply when unauthorised use is detected, such as through Turnitin. If the use of generative AI, such as ChatGPT, is allowed in a specific assessment, they must be properly credited, and your submissions must be substantially your own work.

School Contact Information

Location

UNSW Mechanical and Manufacturing Engineering

Ainsworth building J17, Level 1

Above Coffee on Campus

Hours

9:00–5:00pm, Monday–Friday*

*Closed on public holidays, School scheduled events and University Shutdown

Web

School of Mechanical and Manufacturing Engineering

Engineering Student Support Services

Engineering Industrial Training

UNSW Study Abroad and Exchange (for inbound students)

UNSW Future Students

Phone

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

(+61 2) 9385 4097 – School Office**

**Please note that the School Office will not know when/if your course convenor is on campus or available

Email

Engineering Student Support Services – current student enquiries

- e.g. enrolment, progression, clash requests, course issues or program-related queries

Engineering Industrial Training – Industrial training questions

UNSW Study Abroad – study abroad student enquiries (for inbound students)

UNSW Exchange – student exchange enquiries (for inbound students)

UNSW Future Students – potential student enquiries

- e.g. admissions, fees, programs, credit transfer

School Office – School general office administration enquiries

- NB: the relevant teams listed above must be contacted for all student enquiries. The School will only be able to refer students on to the relevant team if contacted

Important Links

- Student Wellbeing
- Urgent Mental Health & Support
- Equitable Learning Services
- Faculty Transitional Arrangements for COVID-19
- Moodle
- Lab Access
- Computing Facilities
- Student Resources
- Course Outlines
- Makerspace
- UNSW Timetable
- UNSW Handbook