



Prescription

This course addresses the engineering design process through a collection of engineering projects that require a range of technologies and design techniques. Sustainability will be an important component of the course, with some of the projects addressing technology and design for sustainable engineering.

Course learning objectives

Students who pass this course will be able to:

1. Explain and follow engineering processes involving specification, design, modelling, analysis and construction to solve engineering problems.
2. Construct simulations of formal models and explain the role of analysis and evaluation in the engineering design process.
3. Prepare a report presenting the outcomes of using a particular model to evaluate a design.
4. Work in a team, applying an understanding of how different skills in a team complement each other.

Course content

The course is primarily offered in-person, but there will also be a remote option and there will be online alternatives for all the components of the course for students who cannot attend in-person.

Students taking this course remotely must have access to a computer with camera and microphone and a reliable high speed internet connection that will support real-time video plus audio connections and screen sharing. Students must be able to use Zoom; other communication applications may also be used. A mobile phone connection only is not considered sufficient. The computer must be adequate to support the programming required by the course: almost any modern windows, macintosh, or unix laptop or desktop computer will be sufficient, but an Android or IOS tablet will not.

If the assessment of the course includes tests, the tests will generally be run in-person on the Kelburn campus. There will be a remote option for students who cannot attend in-person and who have a strong justification (for example, being enrolled from overseas).

The remote test option will use Zoom for online supervision of the tests and you must be able to use Zoom with a camera, microphone, and screen-sharing. Students who will need to use the remote test option must contact the course coordinator in the first two weeks to get permission and make arrangements.

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ENGR 110 is a project-based course with four separate modules. The topics are as follows:

- Module 1 Artificial Intelligence
- Module 2 Finite State Machines
- Module 3 Sustainability
- Module 4 Solar Tracking

Withdrawal from Course

Withdrawal dates and process:

<https://www.wgtn.ac.nz/students/study/course-additions-withdrawals>

Lecturers

Howard Lukefahr (Coordinator)

howard.lukefahr@vuw.ac.nz

Arthur Roberts

arthur.roberts@vuw.ac.nz 04 4636750

145 Cotton, Kelburn **Lab Coordinator**

Arthur Roberts - Co145c

Teaching Format

This course will be offered in-person and online. For students in Wellington, there will be a combination of in-person components and web/internet based resources. It will also be possible to take the course entirely online for those who cannot attend on campus, with all the components provided in-person also made available online.

This is a project-based course featuring four separate modules each with its own topic. The details are provided on the Lecture Schedule.

Student feedback

Student feedback on University courses may be found at:

http://www.cad.vuw.ac.nz/feedback/feedback_display.php

Dates (trimester, teaching & break dates)

- Teaching: 05 July 2021 - 08 October 2021
- Break: 16 August 2021 - 29 August 2021
- Study period: 11 October 2021 - 14 October 2021
- Exam period: 15 October 2021 - 06 November 2021

Class Times and Room Numbers

05 July 2021 - 15 August 2021

- **Monday** 13:10 - 14:00 – LT101, Maclaurin, Kelburn
- **Tuesday** 13:10 - 14:00 – LT101, Maclaurin, Kelburn
- **Thursday** 13:10 - 14:00 – LT101, Maclaurin, Kelburn

30 August 2021 - 10 October 2021

- **Monday** 13:10 - 14:00 – LT101, Maclaurin, Kelburn
- **Tuesday** 13:10 - 14:00 – LT101, Maclaurin, Kelburn
- **Thursday** 13:10 - 14:00 – LT101, Maclaurin, Kelburn

Other Classes

This is a project-based class and the schedule will vary from week to week. During lecture weeks there will be more lecture and less laboratory time, and during lab/project weeks there will be less lecture time and more lab/project time.

Set Texts and Recommended Readings

Required

There are no required texts for this offering.

Mandatory Course Requirements

There are no mandatory course requirements for this course.

If you believe that exceptional circumstances may prevent you from meeting the mandatory course requirements, contact the Course Coordinator for advice as soon as possible.

Assessment

This course consists of four separate modules each with its own topic. Three of the modules will be assessed through lab scripts, project software and/or reflections, and a test.. One module will be assessed through lab scripts and a test. Integrated tutorials will be assessed by participation. In addition there is a final tutorial.

Assessment Item	Due Date or Test Date	CLO(s)	Percentage
Module 1 (AI) Lab Scripts		CLO: 1,2,3,4	8%
Module 1 (AI) Project Software and reflection		CLO: 1,2,3	8%
Module 1 (AI) Terms Test on Blackboard	TBA	CLO: 1,2	8%
Module 2 (FSM) Lab Script		CLO: 1,2,3,4	4%
Module 2 (FSM) Software		CLO: 1,2,3	12%
Module 2 (FSM) Terms Test on Blackboard	TBA	CLO: 1,2	8%
Module 3 (Sustainability) Lab Scripts		CLO: 1,2,3,4	8%
Module 3 (Sustainability) Terms Test on Blackboard	TBA	CLO: 1,2	8%
Module 4 (Solar Tracker) Lab Script		CLO: 1,2,3,4	4%
Module 4 (Solar Tracker) Software		CLO: 1,2,3	12%
Module 4 (Solar Tracker) Terms Test on Blackboard	TBA	CLO: 1,2,3,4	8%
Final Tutorial		CLO: 3,4	4%
Integrated Tutorials during lab times (participation)		CLO:	8%

Penalties

Work submitted late will be subject to a penalty of 10% of the total mark per day.

Extensions

Individual extensions will only be granted in exceptional personal circumstances, and should be negotiated with the course coordinator before the deadline whenever possible. Documentation (eg, medical certificate) may be required.

Submission & Return

Lab script and project dates will be posted on the lecture schedule. All lab scripts and projects will be marked. Your marks and comments on your submission will be accessible via the web: see the links on the Assignments page.

Marking Criteria

Student work provided for assessment in this course may be checked for academic integrity by the electronic search engine <http://www.turnitin.com>. Turnitin is an online plagiarism prevention tool which compares submitted work with a very large database of existing material. Turnitin will retain a copy of

submitted material on behalf of the University for detection of future plagiarism, but access to the full text of submissions is not made available to any other party.

Group Work

Laboratory and project work will often require working as part of a group, however assignments are all assessed individually.

Workload

In order to maintain satisfactory progress in ENGR 110, you should plan to spend about 150 hours in total or about 12 hours per week on this paper. A plausible and approximate breakdown for these hours would be:

- Lectures: 2
- Labs: 4
- Readings and Lab preparation: 2
- Additional work on the assignments: 4

Teaching Plan

See https://ecs.wgtn.ac.nz/Courses/ENGR110_2021T2/LectureSchedule

Communication of Additional Information

All communication about the course will be provided through the course website:
https://ecs.wgtn.ac.nz/Courses/ENGR110_2021T2/

Links to General Course Information

- Academic Integrity and Plagiarism: <https://www.wgtn.ac.nz/students/study/exams/integrity-plagiarism>
- Academic Progress: <https://www.wgtn.ac.nz/students/study/progress/academic-progress> (including restrictions and non-engagement)
- Dates and deadlines: <https://www.wgtn.ac.nz/students/study/dates>
- Grades: <https://www.wgtn.ac.nz/students/study/progress/grades>
- Special passes: Refer to the Assessment Handbook, at <https://www.wgtn.ac.nz/documents/policy/staff-policy/assessment-handbook.pdf>
- Statutes and policies, e.g. Student Conduct Statute: <https://www.wgtn.ac.nz/about/governance/strategy>
- Student support: <https://www.wgtn.ac.nz/students/support>
- Students with disabilities: https://www.wgtn.ac.nz/st_services/disability/
- Student Charter: <https://www.wgtn.ac.nz/learning-teaching/learning-partnerships/student-charter>
- Terms and Conditions: <https://www.wgtn.ac.nz/study/apply-enroll/terms-conditions/student-contract>
- Turnitin: <http://www.cad.vuw.ac.nz/wiki/index.php/Turnitin>
- University structure: <https://www.wgtn.ac.nz/about/governance/structure>
- VUWSA: <http://www.vuwsa.org.nz>

Offering CRN: [26051](#)

Points: 15

Prerequisites: COMP 102 or 112, ENGR 101

Restrictions: ENGR 111, RESE 111

Duration: 05 July 2021 - 07 November 2021

Starts: Trimester 2

Campus: Kelburn