ENGN4300 Capstone Design Project Project Host Information - Capstone Design Project

Semester 2, 2024

v2024.S2.01

Contents

1. Introduction

The Australian National University (ANU) Engineering Capstone Design Project is a year-long compulsory course (two concurrent semesters) taken by 4th-year engineering students. Capstone has minimal teaching-time and focuses on allowing students to deliver real world value to their project hosts. Capstone provides students an invaluable opportunity to apply their systems engineering and technical skills on an engineering-related project in a professional environment.

The Capstone Design Project aims to deliver value to all stakeholders; you - the project host, broader stakeholders, the student project team, and other associated teams. We define "value" as the complementary development of your project outcomes and the project's governance, using a Systems Engineering approach. We don't prescribe your project outcome, as each project will have different goals and challenges.

Capstone uses a 360-degree feedback approach to monitor the progress of each project. Called 'many eyes' (Figure 1). This approach is informed by four key stakeholder perspectives: self-evaluation, the "shadow" or peer perspective, the tutor perspective, and the project host perspective. This feedback across multidimensional criteria gives the student team a better picture of how the project is tracking, as opposed to a single source of feedback which is often focused on the specific interest of the reviewer.

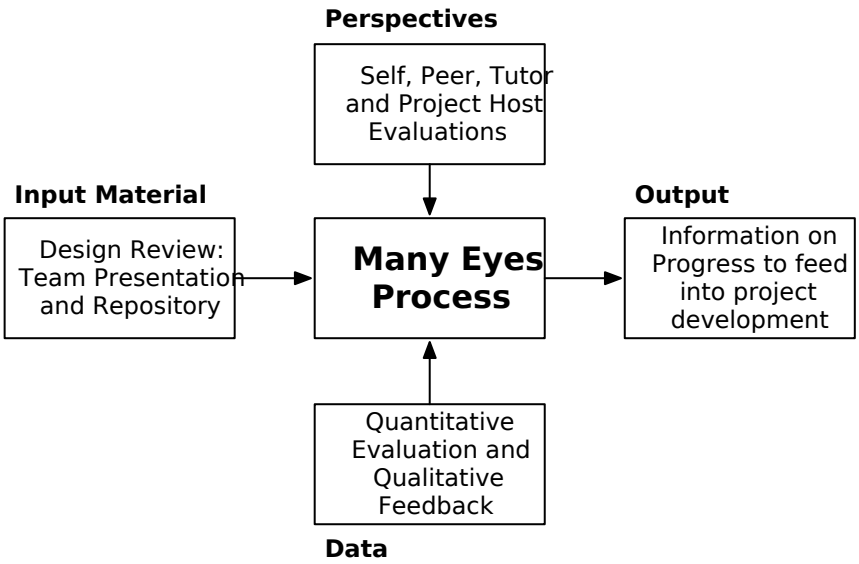

Figure 1: Block diagram of the Many Eyes Process

2. Project Host Role and Expectations

As a Capstone project host, the level of engagement you (or your company) choose to have in your project is mainly up to you. However, to get the most out of this experience, we encourage you to engage/communicate frequently with your student team.

The primary project host role/expectations for this program are:

- Propose a project brief
  - This will be used to advertise your project to the prospective students
- Complete a Project Agreement with the ANU
- Attend the Project selection night.
  - Project selection night will take place online on an evening in the first week of semester (Late February or July). Invitations and further information will be sent closer to this date.

- Regular (minimum of weekly or fortnightly) communication or meetings with the student team.
    - More frequent communication may be required in the first 2-3 weeks to ensure the team gets going quickly and can sort out any difficulties such as the initial project scope. The students should also negotiate a Concept of Operations (ConOps) document with their project host prior to the first audit two-three weeks after the project begins.
- Provide feedback to the team through our audit process (we will reach out to you about this).
- Provision of any training needed for the students to complete this project (if appropriate).
- Provision of available resources needed for the students to complete the project (which they cannot obtain through ANU or the microgrant program).
- Have a representative attend the Project Showcase event towards the end of the project.

3. Project scope

The scope of the project is flexible. In general, we encourage you to discuss with your student team a rough scope for what everyone believes is achievable given the students' skill set. The project must use systems engineering processes, tools and skills as these are the critical areas on which students will be assessed.

All students are in their 4th year (or later) of Engineering (with various backgrounds) and will have approximately 10 hours of work per week to dedicate to your project, for twelve weeks over each semester; a total of approximately 240 hours per student. A team usually consists of between 4 and 6 students.

We expect each team to determine the most effective use of their time in consultation with you. This should consider other commitments of team members which could include other courses and assessment, employment, internships, and timelines within the project. Where possible, the team should complete their hours within the teaching semesters. Teaching support will not be provided in teaching breaks and between semesters.

The project scope may shift across the year. Should the project objectives and outputs change significantly, the students should create a new Concept of Operations signed by all relevant stakeholders. If this shift in project scope affects risk, changes to the WHS risk assessment and request for approval should also be completed. We aim to ensure that both you and your students achieve the key outcomes/points of value that you are looking for from the project.

We have provided more information about the course and the expected outcomes from the students in the course and assessment guides located on the course website.

If at any time you feel that the output of your project is not meeting expectations, please reach out to the course convener and/or the tutor of your student team.

4. Cohort Size

With the introduction of the two-semester long Capstone and alterations to entry requirements, student enrolment fluctuate. Therefore, some projects pitched at the selection night may not move forward this round. However, with a new intake of students each semester, we welcome you to pitch a project again for the next round.

5. Project Selection Night

Project selection night is from 5 to 7 pm on an evening in late February or July (week 1 of semester), depending on the semester the project is offered. It will be run online, and full instructions for the night will be sent with an invitation via email.

The project selection night is run as a 'two-way' interview format, allowing you to know more about the students and identify those you would like to have in your team whilst enabling the students to learn more about each project and submit their project preferences.

We do not have set expectations about preparations for telling the students about your project, but some project hosts like to have a short pitch (a minute or two) prepared. Supporting materials such as photos of sites and equipment may also be suitable for some projects.

Following the project selection night, you have until noon the following day to submit your preferences for students. Please note, this is not mandatory. We will do our utmost to match students with these preferences. However, there are many factors to consider when forming project teams, so it is likely that you will not get all the students that you request. Don't hesitate to contact us if you have specific arrangements (such as a pre-formed group) as soon as possible.

If, for any reason, you cannot have a representative attend the project selection night, please contact us as soon as possible. We recommended you supply a recorded pitch (or script) if you cannot attend. We will share this with the students.

6. Key Project and Course submissions

Key dates for the course can be found on our website https://eng.anu.edu.au/courses/engn4300/

6.1. Project Audits

Capstone includes four project audit weeks spaced throughout the year. Audits provide qualitative and quantitative feedback organised by the stakeholder group, allowing the team to judge how the project is progressing and how to improve. Acting on this feedback will help the student project team deliver value to their project host. Each audit has a specific purpose as detailed below.

Purpose of each audit

Project Audit	Purpose
Project audit 1	Establishes the project including the scope and goals through the creation of the Concept of Operations (ConOps) document. Establishment of governance processes, including risk analysis and project management plans.
Project Audit 2	Reporting on progress of project goals and project governance. Draft system engineering design documents for example requirements analysis, systems architecture, and functional analysis as appropriate.
Project Audit 3	Reporting on progress of project goals and project governance. Plans to test and validate the solution. Plans for the completion and handover of the project to stakeholders.
Project Audit 4	Reporting on and evaluate the final outputs of the project goals. Finalise any project, governance and handover documentation.

6.2. Mid-project Presentations

The mid-project presentations occur shortly before the teams second audit. This is an opportunity for students to present the purpose and value of their project to an unfamiliar audience. In this presentation they will learn about communicating complex and detailed work to others that are not familiar with the specifics of their project. Teams will present their project to the teaching team and fellow students within the Capstone course.

6.3. Project Showcase

The project showcase event takes place in week 10 of the team's final semester. The student teams will present a 3-minute pitch and poster summarising their project and its value to staekholders. We strongly encourage hosts to attend the showcase and will provide further details closer to the event.

7. Funding and Resources

The ANU has microgrants available for students to develop their projects/prototypes. These microgrants are easy to access and can go up to $300 (or more in limited cases); your student team can reach out to the course convener for approval.

Additionally, College of Engineering, Computing & Cybernetics students have access to resources available via the Engineering Technology Hub and the Engineering Workshop, including 3D printing, machining tools, basic workshop facilities, soldering and small electronics equipment, IT hardware/ services, and an extensive suite of software packages. We also have limited storage space and project workspace on campus.

8. Project Agreement

As a formal recognition of the relationship between you, the student team, and the ANU, we will ask you to sign a project agreement. It sets out key aspects of the relationship, including the responsibilities/ expectations of the different parties. Some examples to responsibilities/expectations include confidential information, intellectual property, work health safety, insurances etc. The agreements have been prepared by ANU legal.

For projects provided by hosts external to the ANU, two documents are required:

- ST00 P01 Industry Project Agreement - the agreement between the host and the ANU
- ST00 P02 Student Group Project Agreement - the agreement between the student(s) and the project host

DocuSign will be used to execute external agreements.

For projects provided by hosts internal to the ANU (for example undertaken internally with an ANU School or College), ST00 P05 Internal ANU Project Deed will be used. This is an agreement between each student and the ANU.

Preliminary agreements for each project, outlining agreement conditions but excluding student details, must be made available to students prior to project selection night to allow them to read and understand the conditions for each project and seek independent legal advice. If an agreement is not in place, we will be unable to offer the project. The course convener will contact you to discuss the agreements.

8.1. Intellectual Property

By default, ANU students own their intellectual property (IP) as outlined in the ANU Procedure - Student intellectual property The default position in the agreement is consistent with the ANU Procedure.

An option exists for students to assign the Project IP (that is any intellectual property that a student creates in connection with their project that is not required for examination or assessment) to the project host. This option can be discussed with the course convener.

8.2. Confidential Information

If your project is likely to have sensitive or confidential information accessible to students, please note this in your project proposal. Within this course, sensitive or confidential information may be accessed by the student project team working on your project and the shadow student teams and/or tutors in assessing and reviewing your student project team's work. All groups will be bound by confidentiality requirements where you have identified information as confidential.

Capstone requires students to present their work to the public at the Project Showcase. This may present challenges for students subject to confidentiality agreements. However, it is usually possible to present work without violating such agreements. In all cases, whether subject to agreements or not, students should seek approval from you, their project host, and other relevant stakeholders before any public presentation of their work.

8.3. Insurance

The ANU has a general insurance policy to cover students working onsite for the entire duration of the Capstone program. However, each student will still need to notify the University of the locations that they are doing on-site work.

If you are planning any site visits or other activities for the students, please give them notice so that they can complete the required notification forms and submit them to the School of Engineering (it is a relatively quick process, so a couple of days is fine).

Students undertaking interstate travel may be required to complete ANU travel forms which may take more than a couple of days to process. The students should arrange this in consultation with the course convenor.

8.4. Risk Assessment

Students must complete a WHS risk evaluation for activities planned during the project. This includes activities conducted at the ANU or the host site with separate risk assessments required for each case.

If your project requires students to complete activities at your worksite or another non-ANU location, you should work with the students to complete a work health and safety assessment or induction, supervision and training as required. Approval from the School may be required for higher-risk activities.

9. Points of contact

To enquire about getting involved in Capstone please reach out to our Engagement & Impact team (Mike Hanauer and Cathy Zhou) -engagement.eng@anu.edu.au

Your student team is responsible for providing you with any information about the course that they have access to but if you need any more information, or have any questions you can reach out to:

- Our course email address - engn4300.cecc@anu.edu.au
- Dr Zena Assaad (Course Convenor) – zena.assaad@anu.edu.au
- Jenny Simmons (Course Administrator) – jenny.simmons@anu.edu.au
- The tutor for your team (you can get the name/email from your team or Jenny if you have not already been contacted).

10. Additional Information

You can find more information in the course and assessment guide. These guides are available via the course website in the Current Student section.

11. Version Control

{% include band_close.html %} {% include band_color.html band_color="tint"%}

11.1. Document Information

Document Information

This document	ENGN4300 Host Guide [Download as PDF]
Format	PDF preferred, also available as web page
Document type	Information and Procedures
Purpose	Overview of course requirements, governance and processes for project hosts offering projects in ENGN4300 Systems Design Project
Semester	Semester 1, 2024
Audience	Current or potential hosts
Contact	zena.assaad@anu.edu.au
Version	v2024.S1.01
Related Content	ENGN4300 Assessment Guide [Website] [Download as PDF] ENGN4300 Course Guide [Website] [Download as PDF]

11.2. Change log

2024.S1.01: 12_10_2023

- Initial version S1 2024 - dates, contacts and agreements updated