

4TU.Responsible Sustainability Challenge

*a 15 ECTS project for Master Honours students (or students on a similar locally defined track),
starting September 2022*

Course motivation

From a student's perspective, this module fills a current need for a practically oriented educational programme that highlights multidisciplinary collaboration. In particular, excellent Master (Honours) students want to improve their leadership/teamworking skills and gain real-life project-based experience in a structured and guided way. This module allows students to step outside their own university and study fields and to put theoretical knowledge into practice. The course is built on the challenge-based learning principles and asks students to drive their own education to gain the knowledge and skills that fit with their individual needs. The module focuses on the topic of sustainability, which is a topic that unites students from all different backgrounds and which sparks tremendous enthusiasm within the student community. The module also brings together staff, student assistants and experts from the four technical universities to increase further collaboration and knowledge-sharing.

Outlook on the course

Students work in groups of 5-8 students on a topic that is related to developments in technology aiming at increasing sustainability in society. This project aims to approach the development and implementation of sustainable technology in a multidisciplinary manner, with an emphasis on the combination of energy, materials, and ethics. Topics in this project relate to the Green Deal of the European Union.

The group independently studies the chosen topic and formulates their analysis and conclusions, in regular contact with academic supervisors and external advisors. Beside a matchmaking event to meet students and stakeholders, progress meetings, and a final symposium will be organized.

Educational design

- Leadership skills: students formulate their own challenge and look for their own experts.
- Academic experts safeguard the quality, scope, and feasibility.
- External stakeholders adjust the challenge to the real-life casus, ensuring relevance to the here-and-now, non-academic context.

Milestone events

- Leadership skills course (TU/e) for interested students
- Introductory workshop for stakeholders: manage expectations
- Speed date / match-making event (breakfast): for groups of students and external stakeholders
- Plenary presentation session of project drafts / feedback session
- Definite approval of the projects (improved on the basis of feedback)
- Milestone events for presentations of work-in-progress
- Finalizing projects towards to end of the course, including final symposium, award ceremony



Three roles for academic experts

This challenge asks for the involvement of academic experts, with an emphasis on experts in the fields of materials science, energy, and ethics and technology, on both a voluntary and - for this challenge – an established basis.

1. **A core team** provided by the 4TU.Centres: an academic representative from each of the four universities is needed for formal educational reasons, like approval of the project proposal, control of academic quality, and to assign credits (i.e. a local course coordinator). Also at milestone events the core-team might have an expert and/or jury role depending on the set-up of the event. Administrative support of the core team for online preparatory meetings before kick-off and during the course of the challenge is considered by the working group.
2. On request of students each (assistant/associate) professor with an expertise relevant to the challenge and a connection to fellow academics is available for **supervision / coaching**, to be a contact person on a regular basis throughout the course. 'Regular' to be agreed-to in advance and defined concretely for a certain period of time and certain number of hours. The coach will support the students in going through the learning process from 'challenge' to 'proposed solution'. The focus is not on the validity of the solution but about the steps taken throughout the process. In a flexible and student-lead way the coach will meet with the team to support this process and intervene when needed on a team level.
3. On request of students each (assistant/associate) professor in the network of the 4TU.Centres is available for their **expertise**, and as an invited speaker at milestone events or for more incidental advise and feedback.

Coordination and organisation

The 4TU.Centres provide organisational support, means of communication (website), and budget to facilitate events. Preferably, at each university a local (honours) coordinator (or someone in a similar role) is designated as a contact person for educational affairs. Also support of the core team will be considered. A group consisting of student-assistants from each university can be formed for organisational and communication tasks.

"For students, it's becoming more and more important to learn and to show that you are able to work in a multidisciplinary team on subjects that transcend your regular education. In addition, the current work environment is asking young professionals for skills that can only be gained through practical work experience. That is why this module is particularly interesting for ambitious and excellent students. There's a student-driven setup to the entire module with the flexibility to let you work on a project within a real-world setting. In the project, you will have a stakeholder to satisfy and a team to bring together in order to solve the problem, and it is great to practice these skills in a guided and structured way. Finally, working on the topic of sustainability together with a group of enthusiastic peers will certainly be a valuable and rewarding experience!" - University of Twente Master Honours student

4TU.Responsible Sustainability Challenge 2021 | 4TU.Ethics & Technology, Energy, High-Tech Materials | Contact person: Reina Boerrigter (coordinator 4TU.HTM) | r.boerrigter@tudelft.nl | <https://www.4tu.nl/htm/education/responsible-sustainability-challenge/>