SUSTAINABILITY HACKATHON

BRIDGING THE GAP BETWEEN HIGHER EDUCATION AND SOCIETY

Dorien Baeten[1], Ilse Engelen[1,2,3], Sarah Doumen[1], An Hardy[1,4], Wouter Schroeyers[3,5]

[1] Faculty of Sciences; [2] School of Educational Studies; [3] Faculty of Engineering Technology; [4] Institute for Materials Research; [5] Centre for Environmental Sciences, Research group NuTeC; Hasselt University, Belgium

1. CONTEXT

Traditional chemistry (engineering) education excels at technical proficiency but often lacks a holistic approach to "wicked problems." To achieve **Responsible Chemistry**, students must develop more than just theoretical, lab and engineering skills. They need **Sustainability Competencies**, which is also acknowledged by industrial partners in sounding board groups.

Sustainable development is currently addressed to a limited and somewhat fragmented extent across various courses within the relevant degree programs, and as a result, this aspect is not always explicitly clear to students.

2. VLAIO-FUNDED PROJECT

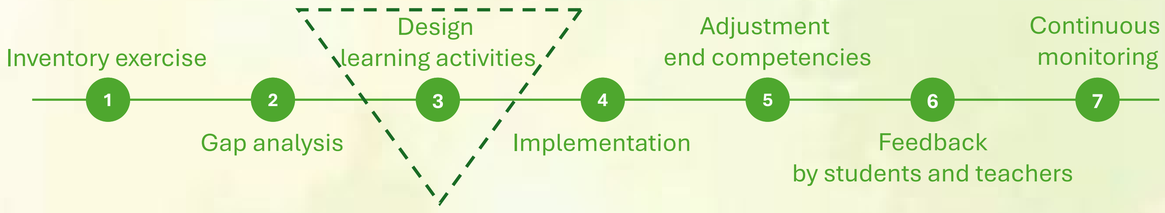
GOAL: Design and implementation of **Sustainability learning line** in the bachelor and master programs industrial engineering (KUL/UH) and the bachelor chemistry and physics and master materiomics (UH).

FOCUS: (1) Circular economy, (2) Sustainability and (3) Valorizing skills

Lead SDGs:

Core SDGs:

PROJECT PLAN – DESIGN SUSTAINABILITY LEARNING LINE:



Applying sustainability competencies in existing and new initiatives:

CURRICULAR INTEGRATION
- Dissertations
- Guest lecturers from work field

DIALOGUE & CO-CREATION
- Debate
- Sustainability hackathon

WORKSHOPS
- SDG workshop
- Summer school

3. SUSTAINABILITY HACKATHON

CHARACTERISTICS OF A HACKATHON[1]:
- Team-based organization, intensity, creativity, problem solving

MUTUAL BENEFIT OF A HACKATHON:
- Participating companies: ideas generation
- Students: improve students learning + deal with realistic problems

THE SETUP:
- **four (local) industrial partners** provided a current, unsolved sustainability challenge
- students from industrial engineering and materiomics worked together in **interdisciplinary teams**
- **industrial partners** and UHasselt coaches were **present on site** to answer content-related questions
- 6 hours to move from problem analysis to solution design in an **organized process flow** under the expert guidance of Vlajo

PHASE 1: ANALYSIS CHALLENGE

Formulate the challenge in own words. What are the needs? Why are existing solutions insufficient? What are negative consequences? What is the budget? ...

PHASE 2: BRAINSTORMING

Which words come to mind when you think about the challenge? Use these words to generate ideas (not considering project boundaries)? ...

PHASE 3: IDEA SELECTION

Arrange the ideas on a quadrant, where the horizontal axis divided into ordinary ideas and original ideas and the vertical axis into not (yet) feasible and feasible.

PHASE 4: SOLUTION DESIGN

Why is this the best idea? How does it meet the needs of the target group? What resources are needed to realize the solution. What is the budget? What value does this solution create? ...

PHASE 5: PITCH

Present the solution to the jury and fellow students. The pitch is assessed based on the solution (60%) including **its sustainability**, the presentation style (20%) & team spirit (20%)

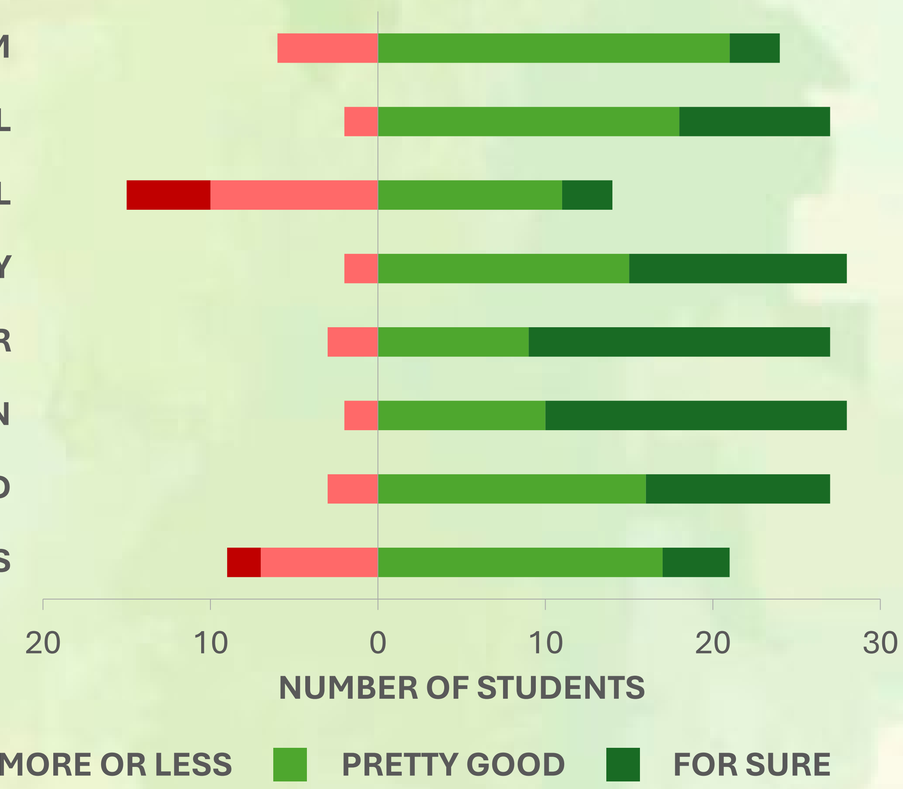
4. EVALUATION

HACKATHON IN NUMBERS:

- **32** STUDENTS
- **6** SPECIALIZATION MAJORS
- **8** STUDENT TEAMS

AFTER-MOVIE:

FEEDBACK OF PARTICIPANTS:



ACKNOWLEDGEMENT

Industrial partners edition 2026:

Contact me:
dorien.baeten@uhasselt.be

[1] de Macedo Guimarães, L.B. *et al.* (2021). Sustainability Hackathon: Integrating Academia and Companies for Finding Solutions for Socio-environmental Problems. In: Leal Filho, W., Tortato, U., Frankenberger, F. (eds) Integrating Social Responsibility and Sustainable Development. World Sustainability Series. Springer