**TASK 01**

SDG GOAL 4: **QUALITY EDUCATION**

The 4th Sustainable Development Goal aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

**Challenges**

One of the primary challenges is **educational inequality**. Disparities in access to quality education exist between urban and rural areas, between genders, as well as among socio-economic groups. Marginalized communities, including ethnic minorities and migrants, often face barriers such as language difficulties, cultural differences, and limited access to resources.

Another issue is the **skills mismatch** between education systems and labor market needs. The rapid pace of technological advances has created a growing demand for digital skills and lifelong learning opportunities. However, traditional education systems in many countries struggle to adapt quickly enough to these changes, leaving many people underprepared for the workforce.

Moreover, the **lack of adequate educational facilities** is a significant challenge to achieving the goal. Disparities in infrastructure persist especially in rural and economically disadvantaged areas. Inadequate school buildings, overcrowded classrooms, and limited access to basic services such as clean water, sanitation or electricity make it difficult for students and teachers to perform effectively.

**Solutions**

To address these challenges, the EU has adopted several strategies by settling targets each country must achieve by 2030. First, enhancing access to education through targeted funding for disadvantaged regions and communities is critical. Initiatives such as Erasmus+ provide financial support to reduce inequalities and promote inclusive education.

Second, encouraging digital transformation in education is essential. Investing in digital infrastructure, teacher training, and curriculum updates can bridge the digital divide and equip students with the skills needed in a modern economy. The EU’s Digital Education Action Plan serves as a roadmap for integrating technology into classrooms effectively.

Third, promoting lifelong learning opportunities is vital to align education with the evolving demands of the labor market. Vocational training programs and continuous professional development initiatives are key components of this strategy.

**Green-Metrics and UBB improvements**

1. **Green-Metrics at the University of Groningen**

The University of Groningen achieved the third place in the 2024 UI Green Metric Ranking, being the fourth year in a row the university finishes in the top five. The dutch univeristy’s goals are laid out in a roadmap and are categorized in 3 central themes: **Planet**, **Performance** and **People**.

Regarding **Planet** aspect, the university’s ambition is to reduce the 2019 CO2 production by 30% by 2025 and a longer-term goal is to become CO2 neutral by 2035. Some concrete solutions for these challenges are sliding all buildings to energy label C by 2023 and to label A by 2030 and all newly constructed buildings and alterations in accordance with BENG (almost energy-neutral buildings). On the other hand, concerning the water consumption problem, the dutch university aims to reduce the amount of water per user (staff member or student) of 5% in the short term (compared to 2019) and in total 10% in the long term (by 2026).

For being more sustainable, the university of Groningen need more involvement in sustainability actions from students, staff and external parties. So, the **performance** goals are formulated to expand the number of sustainable study options or encourage interdisciplinary research on sustainability. Another ambition for the university is to organize small interdisciplinary groups called green committees comprising staff who wish to help solve specific environmental problems such plastic waste in laboratories.

Concerning **people**,the human resources department of the university will be responsible for a sustainable HR policy that includes sustainable employability, diversity and inclusion.

1. **UBB improvements**

* **Transportation**: Invest in electric vehicle charging stations and campus electric vehicles.
* **Buildings**: Design new constructions to meet green building certifications (LEED or BREEAM). Integrate features like green roofs, rainwater harvesting systems, and efficient isolation.
* **Trainings**: Offer sustainability training for faculty and staff to integrate sustainable practices into their daily routines.
* **Local Suppliers**: Support local businesses to reduce carbon emissions associated with transportation and boost the local economy.

**TASK 02**

**Context**

Scheduling conflicts and inefficient class allocation affect students' ability to attend required courses.

**Problem statement**

The university will implement a solution to provide students the ability to schedule their courses according to their needs by creating a smart scheduling system.

**Actors:**

1. **Student (S)**: A learner needing an optimized class schedule.
2. **Scheduling System (SS)**: A digital platform managing class allocations.

**Signals:**

1. **S to SS**: *submitSchedulePreferences*
   * A signal indicating the student’s preferred times and required courses.
2. **SS to S**: *optimizedScheduleGenerated*
   * A response providing an optimized class schedule based on preferences and course availability.

References:

* [THE 17 GOALS | Sustainable Development](https://sdgs.un.org/goals)
* [UG 3rd most sustainable university in global ranking | Sustainability | University of Groningen](https://www.rug.nl/about-ug/profile/facts-and-figures/duurzaamheid/nieuws/green-metric-ranking-2024?lang=en)
* [UI GreenMetric](https://greenmetric.ui.ac.id/)
* [Green UBB – Universitatea Babeș-Bolyai](https://green.ubbcluj.ro/)