

ENV-461

**Sustainability assessment of urban systems**

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| Cursus  | Sem.     | Type |
|---|----------|------|
| Energy Science and Technology                               | MA2, MA4 | Opt. |
| Energy minor  | E        | Opt. |
| Environmental Sciences and Engineering                      | MA2, MA4 | Opt. |
| Minor in Engineering for sustainability                     | E        | Opt. |
| Minor in Integrated Design, Architecture and Sustainability | E        | Opt. |
| Territories in transformation and climate minor             | E        | Opt. |
| Urban Planning and Territorial Development minor            | E        | Opt. |

|                            |                     |
|----------------------------|---------------------|
| Language of teaching       | English             |
| Credits                    | 3                   |
| Session                    | Summer              |
| Semester                   | Spring              |
| Exam                       | During the semester |
| Workload                   | 90h                 |
| Weeks                      | 14                  |
| <b>Hours</b>               | <b>3 weekly</b>     |
| Lecture                    | 2 weekly            |
| Exercises                  | 1 weekly            |
| <b>Number of positions</b> |                     |

**Summary**

This course provides students with the ability to critically reflect on sustainability and perform a sustainability assessment based of problems in urban areas. At the end of the course students are able to develop a own sustainability assessment with the Sustainability Solution Space methodology.

**Content**

- What is a sustainability assessment?
- Key sustainability issues in urban areas
- Systemic, normative, and procedural aspects of sustainability assessments
- Sustainability and resilience
- Introduction into developing a sustainability solution space (SSP)
- Application of SSP problems in urban areas
- Policy implications of sustainability assessments

**Keywords**

- Sustainability assessment
- Problems in urban systems
- Systemic, normative and procedural aspects of sustainability assessment
- Sustainability solution space

**Learning Outcomes**

By the end of the course, the student must be able to:

- Assess / Evaluate a series of options from a sustainability perspective
- Design a study in which the assessment method can be applied in a meaningful way
- Distinguish between systemic, normative and procedural aspects of sustainability
- Apply the sustainability solution space software to a real world problem
- Apply the methods relevant for sustainability analysis to a specific problem

**Transversal skills**

- Communicate effectively with professionals from other disciplines.
- Make an oral presentation.
- Access and evaluate appropriate sources of information.
- Continue to work through difficulties or initial failure to find optimal solutions.
- Identify the different roles that are involved in well-functioning teams and assume different roles, including leadership roles.
- Write a scientific or technical report.
- Assess one's own level of skill acquisition, and plan their on-going learning goals.

### Teaching methods

Lectures, exercises and group presentations, self-defined group work. Inputs from external people are planned.

### Expected student activities

We expect students to attend to the lectures and the exercises offered. The lectures and exercises will be closely interlinked and taught openly within the three hours allocated to the course. They are expected to develop their own case study and perform a sustainability assessment related to problems in the urban or energy systems.

### Assessment methods

The students will be evaluated as follows:

- Intermediate exam after around 9 lectures (30%)
- Presentation of the case study analyzed (20%)
- Written report on the case study (50%)
- Group work (4 people) is encouraged

### Supervision

|              |     |
|--------------|-----|
| Office hours | Yes |
| Assistants   | Yes |

### Resources

#### Notes/Handbook

Will be uploaded to moodle

#### Moodle Link

- <https://go.epfl.ch/ENV-461>