ENV-415

Prototyping at the interface between disciplines

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Cursus	Sem.	Type
Environmental Sciences and Engineering	BA5	Opt.

Language of teaching	English
Credits	4
Withdrawal	Unauthorized
Session	Winter
Semester	Fall
Exam	During the semester
Workload	120h
Weeks	14
Hours	**4 weekly**
Project	4 weekly
Number of positions	

It is not allowed to withdraw from this subject after the registration deadline.

Summary

This course will allow students to engage in hands-on projects in a dedicated workshop environment - the SKIL. Students work together in small groups on projects formulated together with the teacher and the highly specialized lab-managers of the SKIL. Students can also bring their own ideas.

Content

The SKIL is well equipped laboratory or workshop in which students can be aided in their creativity by the availability of a vast array of materials and technical capabilities, which will make
it possible to transform concrete ideas into physical reality, directly aided by the highly specialized SKIL team of laboratory managers. Students can use the SKIL environment to build prototypes that can be either the result of their own ideas, or a challenge posed by the SKIL team. Once a project has been formulated (and approved) students will ideate/brain-storm in small groups (2-4 people), describe the expected outcome, assign individual roles, define mile stones, and enter the design and construction phase. Evaluation will take place continuously in conversations with the SKIL team, permitting adjustment of planning and implementation, with mid-term and end of semester presentations of the project/results/products/methods developed - and the difficulties encountered.

Keywords

Interdisciplinarity, workshop, creativity, hands-on, group work, technology.

Learning Prerequisites

Required courses

No special requirements

Recommended courses

No special requirements

Important concepts to start the course

Curiosity, creativity, team-work

Learning Outcomes

- Develop a project from idea to realization

- Specify the role of the team members and the team objective
- Make a physical or numerical prototype
- Define a planning to reach the goal

Transversal skills

- Set objectives and design an action plan to reach those objectives.
- Demonstrate a capacity for creativity.
- Communicate effectively with professionals from other disciplines.
- Communicate effectively, being understood, including across different languages and cultures.
- Continue to work through difficulties or initial failure to find optimal solutions.

Teaching methods

Hands-on projects, direct instruction in the use of tools, methods, and use of materials.

Expected student activities

Hands-on proto-type development

Assessment methods

At the end of the semester each group will orally present the story of their project and its results, accompanied by a report.
Each student will be evaluated individually based on their engagement and contribution to the project, which will contribute 50% towards the final grade.

Resources

Websites

- https://www.epfl.ch/labs/skil/en/about/

Moodle Link

- https://go.epfl.ch/ENV-415