ENV-470

Development engineering

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Cursus	Sem.	Type
Energy Science and Technology	MA2, MA4	Opt.
Environmental Sciences and Engineering	MA2, MA4	Opt.
Minor in Engineering for sustainability	E	Opt.
Minor in Integrated Design, Architecture and Sustainability	E	Opt.

Language of teaching	English
Credits	4
Withdrawal	Unauthorized
Session	Summer
Semester	Spring
Exam	During the semester
Workload	120h
Weeks	14
Hours	**4 weekly**
Courses	2 weekly
Project	2 weekly
Number of positions	

Il n'est pas autorisé de se retirer de cette matière après le délai d'inscription.

Remark

Technology innovation for development, humanitarian action and peace

Summary

This course teaches the fundamentals of designing technologies that are essential to support people living in contexts of extreme vulnerability such as extreme poverty, humanitarian crises and situations of conflicts and violence. The course involves both theory and practical work on real cases.

Content

Topics:

- Extreme vulnerability and Resilience
- Contexts of extreme vulnerability and technology
- Essential human needs and related technologies
- Methodological approaches and engineering principles to develop solutions for the context of vulnerability
- Entreprenarial tools and innovation pathways for tangible and scalable Impact

Keywords

Technology, innovation, poverty, humanitarian crises, conflicts, violence, entrepreneurial approach, engineering principles for contexts of vulnerability, Low-and-Middle Income Countries, LMIC, poverty reduction, social entrepreneurship, technologies for development, sustainable impact, sustainable business models, value chains, scale-up, Humanitarian-Peace-Development Nexus.

Learning Prerequisites

Required courses

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Recommended courses
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Important concepts to start the course
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Learning Outcomes
By the end of the course, the student must be able to:
- Assess / Evaluate Technology needs in Situations of extreme vulnerability
- Analyze affordable, sustainable, and socially acceptable technology solutions
- Elaborate the interlinkages between development, humanitarian action and peace promotion.
- Carry out Technology innovation projects in/with vulnerable communities
- Propose Sustainable and socially responsible business solutions, adapted to the specific context of vulnerability.
- Formulate High impact technology innovation strategies and pathways that can scale up

Transversal skills
- Demonstrate the capacity for critical thinking
- Access and evaluate appropriate sources of information.
- Identify the different roles that are involved in well-functioning teams and assume different roles, including leadership roles.
- Give feedback (critique) in an appropriate fashion.

Teaching methods
Lectures (100% in English) flipped classroom, guest lectures, group work/presentation, recommended reading list.

Expected student activities
Homework, group work and presentation, reading, some mandatory watching of MOOC videos.

Assessment methods
During the semester
- Written exam (50%)
- Group work: pitch presentation, (50%)

Supervision
Others	Teachers and teaching assistants will be available to guide students in their various group works.

Resources
Bibliography
The bibliography will be provided at the beginning of the course.

Websites

- https://www.essentialtech.ch/

Moodle Link

- https://go.epfl.ch/ENV-470