ENV-510

Life cycle assessment in energy systems

Margni Manuele Domenico

Cursus	Sem.	Type
Electrical and Electronical Engineering	MA1, MA3	Opt.
Energy Science and Technology	MA1, MA3	Opt.
Energy minor	H	Opt.
Energy		Opt.
Managmt, dur et tech	MA3	Opt.
Minor in Engineering for sustainability	H	Opt.

Language of teaching	English
Credits	3
Session	Winter
Semester	Fall
Exam	Written
Workload	90h
Weeks	14
Hours	**3 weekly**
Lecture	2 weekly
Exercises	1 weekly
Number of positions	

Summary

This course will introduce students to the Life Cycle Assessment (LCA) as a holistic approach to evaluate, among others, energy conversion technologies throughout their entire value chain, and across multiple environmental problems beyond climate change.

Content

The goal of the course is to introduce the methodology of life cycle environmental impact assessment and its application in energy systems.
The content of the course is :

- Introduction to the conceptual framework of LCA and the basic principles according to ISO 14040/44;
- Defining the Goal and setting the scope of a LCA study;
- The computational structure of LCA: modeling the technological system, the related emissions and resources consumption over the entire value chain and characterize the potential environmental impacts;
- Interpretation of a life cycle assessment results, understanding the influence of modeling choices on LCA results and identify current limitations;
- Identify the major environmental issues related to current and new technologies
- Analyse the environmental benefits of energy system integration throughout the value chain

This will be a block course of 1 week with 14h theory and 28 hours practice in form a project realisation
Evaluation will be based on an oral presentation of the project report.

Keywords

LCA
LCIA

Learning Prerequisites

Required courses

None

Resources

Moodle Link

- https://go.epfl.ch/ENV-510