Course: Energy Technology — credits: 5

Course code	TBVB24ETE
Name	Energy Technology
Study year	2024-2025
ECTS credits	5
Language	English
Coordinator	P.G. de Vey Mestdagh
Modes of delivery	Education
Assessments	Energy systems - Computer, organised by STAD examinations Social Technical Environment - Written, organised by STAD examinations

Learning outcomes

Students can apply terminology of the world of electricity networks and production production
Students can identify the way our current Electricity system was designed more than 100 years ago, expanded and still is operational
Students can identify major technological and non-technological reasons for transformation of the present network towards a so-called Smart Grid
Students can specify in a concrete way what is meant by Smart Grid
Students can explain problems an possibilities with regards to pricing electricity for consumers
Students can formulate an opinion with regards to integration of renewable energy sources into the electricity network
Students can describe the role of so-called micro-grids
Students can identify new roles for the consumer in a Smart Grid situation
Students can describe several control mechanisms that are present in the present electricity power sysem, and possible changes therein
Students can present a Smart Grid related topic in a way accessible for interested individuals without prior knowledge

Students can identify the carbon footprint of a certain lifestyle and present an energy use overview of that lifestyle
Students can write an article analyzing the Dutch and Foreign prespective on the interaction of social and technical processes in the development of energy sytems

Content

The integration of new energy systems with existing energy systems is a complex task. By means of analyzing the development of the smart grid students will learn to understand the causes and results of the complexity if you want to combine energy sources that have different characteristics. Continuity, backup power, synchronicity, islanding and robustness will be discussed.

The interaction between social processes and technical processes are central for the development of society and especially the development of energy systems (social solutions to environmental concern). During this lecture series the relationship will be discussed and examples will be analyzed (the environment, life, people, planet). The complexity of the interaction will be investigated by means of looking at the social and the technical side of developments (dealing with environmental degradation, resource use and management).

Included in programme(s)

Exchange Energy & Society (autumn and spring)
Minor Energy & Society

School(s)

Institute of Engineering

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