

Course: Technologies, Plants and Integration

credits: 5

Course code	SUVH15TPI
Name	Technologies, Plants and Integration
Study year	2022-2023
ECTS credits	5
Language	English
Coordinator	J. Bekkering

Modes of delivery	Teaching method 1
Assessments	Technologies, Plants and Integration - Assignment

Learning outcomes

At the completion of this module the student should: be able to:

- 1) Judge the technical feasibility of a facility (e.g., hydro storage) and its contribution to the energy system.
- 2) Assess and explain grid balancing with technologies and plant designs at different scales.

have demonstrated knowledge and understanding of:

- 3) Energy Basics
- 4) Sustainable Technologies and Economics
- 5) Current Energy Systems and Economics
- 6) Transport & Distribution Technologies and Economics
- 7) Balancing and Energy Storage

Content

In this module the student will firstly acquire knowledge of physical aspects in relation to energy. Discussion of the fundamentals of fossil fuel and renewable energy technologies and energy carriers will follow. The student will also develop basic knowledge of the technical and economic issues relating to the planning and operation of power systems that use renewable energy sources. The influence of technology, cost and scale upon all items are discussed (e.g., after completing this module, the student must be able to judge the technical feasibility of wind energy and its contribution to the energy system and to make a rough cost/benefit analysis to evaluate the viability of such an idea). Gas and electricity grids are predominantly given separate consideration within this module.

The module content is divided in five main parts:

1. Energy Basics
2. Sustainable Technologies and Economics
3. Current Energy Systems (gas, electricity) and Economics
4. Transport & Distribution Technologies and Economics
5. Balancing and Energy Storage

Lab work and a visit provide 0.5 EC of the module.

Included in programme(s)

European Master in Sustainable Energy System Management

School(s)

Institute of Engineering