



LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Energi och miljö i hållbar utveckling

Energy and the Environment in Sustainable Development

MVKF01, 6 credits, G2 (First Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED M

Date of Decision: 2023-04-11

General Information

Main field: Technology.

Compulsory for: M3, MD3

Language of instruction: The course will be given in Swedish

Aim

The course aims at a broad understanding of the overall environmental perspective and society's strive for sustainable solutions. The course is intended to offer insight into the environmental effects of energy and production systems as well as the technical possibilities to improve these systems from a sustainable development perspective. Problems range from the environment of each individual to global environmental and security perspectives.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- be able to explain some of the subject fundamental and important terms
- be able to describe some important energy and environment related issues
- be able to give an overview of properties, environmental consequences and advantages/drawbacks of different energy supply systems

Competences and skills

For a passing grade the student must

- be able to participate in discussions about, for the subject, relevant problems
- be able to present written review of knowledge within, for the subject, relevant area
- be able to write a critical contribution to energy and environment related debate

Judgement and approach

For a passing grade the student must

- be able to independently search for relevant information sources
- be able to compile a review of knowledge within, for the subject, relevant areas
- be able to review arguments and take up a position in energy and environment related debate

Contents

The course explores the following themes:

Sustainability, planetary boundaries, environmental goals, ecological footprint, consumption.

Energy conversion, power production, renewable energy, the energy system and its environmental impact.

Transports, combustion engines, electric vehicles, vehicle technology, renewable fuels, transporters' environmental impact.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)

Assessment: In the form of individual examination (three compulsory knowledge tests based upon the provided literature) and examination based upon group performance (written essay). All assignments must be approved before the compulsory written exam.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Admission

Assumed prior knowledge: MMVF01 Thermodynamics and Fluid Mechanics

The number of participants is limited to: No

Reading list

- Material relevant for the course theme is continuously updated. It may consist of reports accessible from the homepage (Luvit) as well as textbooks.

Contact and other information

Course coordinator: Jens Klingmann, jens.klingmann@energy.lth.se

Examiner: Jens Klingmann, jens.klingmann@energy.lth.se

Course coordinator: Övind Andersson, oivind.andersson@energy.lth.se

Course coordinator: Alexandra Calvén, alexandra.calven@energy.lth.se

Course homepage: <https://www.energy.lth.se/english/education/>

Further information: Lectures are complemented with compulsory literature and literature tests. The practical group exercises incorporate written presentation and critical peer-reviews.