



LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Energianvändning **Energy Utilization**

MVKN20, 7,5 credits, A (Second Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED M

Date of Decision: 2023-04-11

General Information

Elective for: E4, F4, F4-es, I4, M4-en, W4-es

Language of instruction: The course will be given in Swedish

Aim

The course is about energy utilization in important sectors of the society: industry, buildings and transports.

The study course aims to give knowledge about energy utilization in the above mentioned sectors, its size, structure, development, and driving factors as well as knowledge and application skill in methods and instruments for energy use analyses.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- Be able to characterize the energy use in various sectors of society
- Be able to discuss important energy use dimensions and dimensions of energy planning and management (i.e substitution of fuels/energy sources, energy efficiency and energy saving) such as energy demand and peak load demand, energy carrier, quality requirements, duration, substitution possibilities, price sensitivity, etc
- Be able to relate contemporary national and international energy utilization to the historic development of society
- Be able to formulate a reasonably coherent personal argumentation around important questions and concepts related to energy utilization
- Be able to understand the current Swedish energy policy debate

Competences and skills

For a passing grade the student must

- Be able to carry out some energy measurements
- Be able to independently carry out a practical analysis of energy utilization or energy demand
- Be able to critically examine engineering/academic reports on energy utilization themes
- Be able to carry out a lifecycle cost calculation on an energy efficiency measure.

Judgement and approach

For a passing grade the student must

- Be able to independently carry out a practical analysis of energy utilization or energy demand
- Be able to critically examine engineering/academic reports on energy utilization themes (orally and in written form)

Contents

- Energy utilization in various sectors of society with respect to size, energy carrier, quality demands, duration, coincidence effect, possibilities to substitute, price elasticity, energy and peak load demand etcetera.
- Prognoses of energy demand for different sectors and customer groups and methods for practical analysis of energy utilization and energy demand
- Swedish energy policy and policy targets for energy use
- Green economy with focus on utilization of energy and resources

Examination details

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

Assessment: The examination includes both individual examination and examination based upon group performance. The course includes the following mandatory activities: * 3 tests on selected course literature (individual examination) * 3 seminars (preparatory exercises and active participation) * 3 exercises (oral presentation and written assignment report, where one is examined individually and the other two in group of 3-4 students) Approved tests, and exercises and active participation in seminars are sufficient for final grade 3 "pass". For higher grades a written examination is required.

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

Admission requirements:

- FMIF01 Environmental System Studies: Management for Sustainable Development or FMIF05 Environmental Management or FMIF35 Sustainable Development from an Electro-technological Perspective or FMIF55 Sustainable Development or MVKF01 Energy and the Environment in Sustainable Development

The number of participants is limited to: No
The course overlaps following course/s: MVK061

Reading list

- The study course literature is continuously updated and is normally, without charge, accessible for the students from the Internet or the homepage (Canvas) of the course .

Contact and other information

Course coordinator: Universitetslektor Kerstin Sernhed, kerstin.sernhed@energy.lth.se

Examinator: Universitetslektor Kerstin Sernhed, kerstin.sernhed@energy.lth.se

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

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

Further information: The course is based on lectures, seminars, studies, reports and analysis as group exercises, industrial visits, energy policy role play, and tests on compulsory readings with subsequent review and correction. Participation at the course introduction is mandatory, to ensure that all students are included in the construction of mandatory student groups.