MJ2518 Energy Demand and Supply Distribution Systems in the Built Environment 6.0 credits

Energitekniska behov och distributionssystem i den byggda miljön

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

On 15/10/2021, the Dean of the ITM school has decided establish this official course syllabus to apply from spring term 2023, registration number: M-2021-2023.

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Energy in the built environment, 9 credits (MJ2509)
Applied Thermodynamics, 9 credits (MJ1112)
Fluid Mechanics for Engineers, 6 credits (SG1220)
Heat Transfer, 6 credits (MJ1401)
Renewable Energy Technology, 6 credits (MJ2411)
Energy Systems for Sustainable Development, 6 credits (MJ2508)

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After passing the course, the student should be able to:

1. Identify energy engineering needs in the built the environment, choose and use relevant tools for detailed simulation, considering relevant boundary conditions from the different actors in the built environment.
2. Evaluate outcome and suitability for different choices of technical systems in built environment and how these can be controlled and monitored.
3. Explain function and behaviour of components and systems at inspection of real systems and the implications that these can have on the indoor climate.

Course contents

The course intends to give the students basic knowledge of the needs of buildings, what is driving these needs, how these can be estimated, how relevant distributions systems can be designed, and use of modern modellings tools for assessments for the built the environment.

- The requirements of the buildings and how these can be estimated by means of modern simulation tools.
- Design of the effect of the different choices of system on the indoor environment quality (IEQ)
- Variations in the efficiency of chosen systems during the year and its effect

Examination

- INL1 - Home assignments, 2.5 credits, grading scale: P, F
- LAB1 - Lab exercise, 0.5 credits, grading scale: P, F
- TEN1 - Written exam, 3.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.