MJ2423 Applied Refrigeration and Heat Pump Technology 6.0 credits

Tillämpad kyl- och värmepumpteknik

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

Establishment

Course syllabus for MJ2423 valid from Autumn 2007

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

4A1607/MJ2407 Sustainable energy utilization or equivalent

Language of instruction

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

Intended learning outcomes

The course will give widened and deepened knowledge concerning heat pumping technologies. It will also give the ability to independently treat complex problems within the area of refrigeration- and heat pumping technologies as well as problems within other branches of energy technology.

Course contents

The lectures and seminars will give a wide presentation of different refrigeration processes, refrigeration machinery and plant design. The present status concerning new refrigerants will be discussed. More complex refrigeration processes are treated as well as storage of refrigerated and frozen foodstuff, different freezing methods, insulation technology etc. Calculation of cooling demand, optimization of insulation thickness and of mechanical components is also treated. Design and optimization of heat pump plants, including heat sources for such plants is one of the highlights of the course. Mobile refrigeration and air conditioning units, sorption processes, low temperature processes and air separation processes are also covered.
Testing methods and safety standards for refrigeration systems are discussed during lectures and lab lessons. The course also includes study visits and seminars with experts from industry.

Course literature

Granryd, E., et al. 2002. Refrigerating Engineering, KTH, Stockholm

Examination

- TEN1 - Written exam, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 1.5 credits, grading scale: P, 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.

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

Other requirements for final grade

Written exam (TEN1; 4,5cr) covering theory and problems. Laboratory lessons (LAB1; 1,5 cr).

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.