MJ2426 Applied Heat and Power Technology 6.0 credits

Tillämpad kraft- och värmeteknologi

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

Establishment

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

4A1605/MJ2405 Sustainable Power Generation or equivalent

Language of instruction

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

Intended learning outcomes

In this course, heat and power applications will be treated in detail, such as the components in a power plant, measuring techniques as well as deeper cycle studies and heat and power in industry.

After this course the student should be able to

- In detail understand the principles of different power generation methods,
- Make a technical assessment of a power plant, and suggest how the plant should be controlled.
- Describe all main components in a power plant
- Understand the technical issues of the different prime movers
- Understand how a power plant is operated
- Design a power generation unit from given conditions
- Understand heat and power technology from an overall perspective and in detail, how different processes are built up and how they are integrated in the society
- Have a brief knowledge how the electricity grid works
- Get a future perspective of heat and power technologies, and understand what are the main features of the future power generation methods

Course contents

The course will treat components like gas turbines, steam turbines and condensors. Measurment techniques connected to thermal systems are brought up. Heat and power in the industry is included as well as district heating systems. Different types of power plants will be treated such as combined cycle plants, where a number of different techniques are applied. In the course are also included laboratory exercises, study visits and a minor project work.

Course literature

Material distributed from the Department and the CD-ROM program Computerized Educational Program

Examination

- ÖVN1 - Exercises, 1.5 credits, grading scale: P, F
- ÖVN2 - Exercises, 1.5 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.

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; 3 cr)
Labexercises (ÖVN1; 1,5 cr);(ÖVN2;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.