



MJ2406 Thermal Power Systems 6.0 credits

Termiska kraftsystem

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

Establishment

Course syllabus for MJ2406 valid from Autumn 2019

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Engineering mathematics, basic thermodynamics, fluid dynamics and heat transfer

Language of instruction

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

Intended learning outcomes

After the course the student should be able to:

- Describe the fundamental principles behind thermal energy conversion processes together with their environmental footprint in both conventional and renewable power generation cycles and systems.
- Evaluate the sustainability aspects of combustion processes and boiler technology for hydrocarbon fuels.
- Characterize the parameters, draw the schematic layout, calculate the performance and assess the sustainability factors for Steam Cycles, Gas Cycles and Combined Cycles in power generation applications, in both conventional and renewable energy perspective.

Course contents

The course is about heat and power technology and brings up techniques for large- and small scale electricity and heat generation in power plants fired on conventional or renewable fuels - natural gas, coal, oil, biomass, solar thermal, etc. Thermodynamic and economic analysis of power cycles, heat balance calculations, combustion, steam boilers, steam- and gas turbines, emissions and availability are all included in this course.

Course literature

Föreläsningsanteckningar, CompEdu

Examination

- ÖVN1 - Home Assignments, 1.5 credits, grading scale: P, F
- TEN1 - Written exam, 4.5 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.

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.