

**SYLLABUS**

# **Energy Plant and Systems Engineering 7.5 credits F7011T**

**Energitekniska anläggningar och system**

**Course syllabus admitted: Autumn 2023 Sp 1 - Present**

**DECISION DATE  
2020-02-14**

# Energy Plant and Systems Engineering 7.5 credits F7011T

## Energitekniska anläggningar och system

### Second cycle, F7011T

**Education level**  
Second cycle

**Grade scale**  
G U 3 4 5

**Subject**  
Energiteknik

**Subject group (SCB)**  
Energy Technology

### Main field of study

Mechanical Engineering

## Entry requirements

MTF096/F0004T Physics 1

MTM119/F0031T Hydromechanics

MTM121/F0032T Thermodynamics och heat transfer

## Selection

The selection is based on 30-285 credits

## Course Aim

### 1. Knowledge and understanding

After completing the course students shall:

- have an overview of functions and importance of the energy system
- know different components and processes for energy conversion plants
- understand methods used for the calculation of mass and energy balance for various process components (heat exchanger, reactor, separator etc.)
- understand various methods to evaluate estimated costs and revenues.

### 2. Skills and abilities

After completing the course students will be able to:

- predict process performance of energy plants (energy efficiency)
- make financial calculations for plant or system design
- make assessments of plant and system reliability

### 3. Ability of assessment and attitude

After completing the course students shall:

- have ability to identify limiting factors in process design for generation of heat and electricity

## Contents

An overview of different energy engineering systems such as steam plants, gas turbine plants and combined plants. Economic factors during energy production will be presented and discussed.

A major part of the course will include project work containing a technical/economical study of a power plant.

## Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.

This course follows a problem-based learning (PBL) approach. The students will carry out the analysis of the energy plant. First, lectures of the sub-divided subjects are given with simple calculation exercises, and then project tutoring follows. The project tutoring starts with a short summary of project tasks, and then students continue the project tasks in separate groups.

## Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided. Project calculation, a written project report and oral presentation will be the basis of differential grades.

## Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term "unauthorized aids" refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

## Overlap

The course F7011T is equal to MTM136

## Course offered by

Department of Engineering Sciences and Mathematics

## Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0001	Project	G U 3 4 5	7.5	Mandatory	A07	

## Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

## Last revised

by HUL Niklas Letho 2020-02-14

## Syllabus established

The syllabus was established by the Department of Applied Physics and Mechanical Engineering 2007-02-28, and remains valid from autumn 2007.