



## Energy Recovery Processes

### Energiomvandling ur avfall - viktiga processteg

7.5 credits

7.5 högskolepoäng

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**Ladok Code:** 42K09C

**Version:** 2.0

**Established by:** The Teaching Committee 2011-11-11

**Valid from:** Autumn 2011

**Education Cycle:** Second cycle

**Main Field of Study (Progressive Specialisation):** Chemical Engineering (A1N)

**Disciplinary Domain:** Technology

**Prerequisites:** These prerequisites do not apply to students within the programme Science without Borders.

Meets requirements for acceptance to a masters course in the field of Resource Recovery.

Exceptions may be granted to the prior knowledge requirements by the director of studies and the course manager, who will make a joint decision (or equivalent).

**Subject Area:** Chemical Engineering

**Grading Scale:** ECTS-credits

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## Content

- The Rankine cycle with preheaters, superheaters. Isentropic and non-isentropic turbines, pumps.
- Combustion
- Steam and fluid balances
- Distillation
- Flow models - plug flow and perfect mixture
- Applied microbiology and fermentation technology

## Learning Outcomes

- To perform quantity calculations in respect of combustion, calculate combustion efficiency and combustion temperature. To be able to explain concepts such as excess air and flue gas losses.
- To describe the structure of a boiler.
- To describe the steam cycle and calculate thermal efficiency for a turbine system, and to set up and calculate heat and material balances.
- To describe the principles of distillation.
- To be able to describe, in general terms, applied microbiology and fermentation.

## Forms of Teaching

Lectures, exercises, submitted work

## Forms of Examination

The course will be examined through the following examination elements:

### *Examination*

Learning outcomes:

Credits: 6

Grading scale: ECTS-credits

*Submitted work*

Learning outcomes:

Credits: 1.5

Grading scale: Fail (U) or Pass (G)

Student rights and obligations at examination are in accordance with guidelines and rules for the University of Borås.

### **Literature and Other Teaching Materials**

Material handed out, plus material which can be accessed via computers at the college.

### **Student Influence and Evaluation**

The head of department and teacher responsible for the course are responsible for ensuring that students are invited systematically and regularly to put forward their views on the course. The results of the evaluations will be reported back to the students and will form the basis for the future structure of the course.

### **Miscellaneous**

This course takes place through the medium of English.