AL2142 Material and Energy Flow Accounting for Cleaner Production 7.5 credits

Material- och energiflödesredovisning för Cleaner Production

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

Establishment

The course syllabus is valid from autumn 2021

Grading scale

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

Education cycle

Second cycle

Main field of study

Environmental Engineering

Specific prerequisites

TSUTM: -

Others: Open for programme students at KTH with at least 180 ECTS or a Bachelor degree for other students

AL2143 Cleaner Production and Industrial Environmental Technology, MJ2627 Miljöskyddsteknik or corresponing knowledge in environmental technology

Courses from Upper Secondary School corresponding to the courses Eng B/6 according to the Swedish upper secondary school system

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 shall be able to independently lead and carry out a material and/or energy flow accounting and analysis for Cleaner Production study in a major production industry including:

- Establishing a material balance for the overall process as well as the most important sub-processes of the industry
- To derive complete energy balances (based on energy and exergy) for the overall process as well as the most important sub-processes of the industry
- Using the above-mentioned results to discuss possibilities of promoting Cleaner Production with focus on industrial energy and materials efficiency

Course contents

- Cleaner production fundamentals
- Material flow analysis of industrial processes
- Analysis of energy- and exergy efficiency of industrial processes
- Integrated industrial pollution prevention & control and industrial energy management

Examination

- INL1 - Assignment 1, 0.5 credits, grading scale: A, B, C, D, E, FX, F
- PRO1 - Project 1, 4.0 credits, grading scale: A, B, C, D, E, FX, F
- INL2 - Assignment 2, 0.5 credits, grading scale: A, B, C, D, E, FX, F
- NÄR1 - Attendence 1, 2.0 credits, grading scale: P, F
- INL3 - Assignment 3, 0.5 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.

Other requirements for final grade

- The examination is based on active participation in the course and on the quality of the group task report and individual assignments according to the following:NÄR1: Active participation in Lecture, Seminar and Study visit: 2 creditsPRO1: Approved group task report: 4 creditsINL1: Approved Individual assignment 1: 0.5 creditsINL2: Approved Individual assignment 2: 0.5 creditsINL3: Approved Individual assignment 3: 0.5 credits

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.