



MJ2630 Waste Management, Advanced Course 6.0 credits

Avfallshantering, fortsättningskurs

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

Establishment

Course syllabus for MJ2630 valid from Autumn 2009

Grading scale

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

Education cycle

Second cycle

Main field of study

Chemistry and Chemical Engineering

Specific prerequisites

Previous knowledge corresponding to MJ2620 or MJ2621 or MJ2623 or MJ2626 or MJ2640 or MJ2611 or 3C1340 or 3C1345 or 3C1347 or 3C1345

Language of instruction

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

Intended learning outcomes

The overall aim is to give deeper knowledge in the problems and possibilities of waste management from a national and global perspective. Both industrial and municipal solid waste issues will be discussed. The course will employ a holistic view on solutions as well as technical aspects.

After a passed course the student should be able to:

- Define and explain important concepts in the field of solid waste management, such as waste hierarchy, waste prevention, recirculation, municipal solid waste etc.
- Suggest and describe suitable technical solutions for biological and thermal treatment. The student should also be able to discuss the drawbacks and prerequisites for a chosen solution.
- From a given case, connected to a solid waste problem, suggest, motivate and describe a way to tackle the problem from a system analysis approach.
- Describe the construction and operation of a modern landfill according to the demands of the EU directive.
- Discuss social aspects connected to handling and recirculation of solid waste from a local as well as global perspective.
- Name and describe economical and legal means of control that affect waste management on a social and industrial level from a Swedish perspective.
- Analyse and describe the potential as a secondary raw material, and thereby associated problems and possibilities in a sustainable society.
- Describe, analyse and discuss the connection between waste and consumption on a national and global level.
- Theoretically evaluate results obtained from usage of the system analysis tool ORWARE.
- Independently search for information connected to solid waste management, and make a compilation of this, and analyse it in a written report.
- Make an oral presentation of an individual work and actively participate in the discussion of other groups work.

Course contents

- Description of waste; different types of waste, classification of waste, waste flows in society, amounts and composition of waste.
- Causes of the waste problem and strategies to minimise these problems; Consumption and waste, waste hierarchy (waste prevention, recirculation etc), product development, problem solving with a system analysis approach.
- Legal and economical means of control for waste management (Sweden and EU).
- Waste treatment and handling, thermal and biological methods, landfill, handling of hazardous waste.

Course literature

“Waste treatment and disposal”, Williams, P.T.

Lecture notes

Distributed material during the course

Examination

- INL1 - Assignment, 1.5 credits, grading scale: P, F
- PRO1 - Projekt Work, 3.0 credits, grading scale: P, F
- ANN1 - Study visits, 1.5 credits, grading scale: P, 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.