



# MJ1450 Management and Leadership in Systems Engineering

## 6.0 credits

Chefskurs i systemteknik tillämpat inom energiområdet

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

If the course is discontinued, students may request to be examined during the following two academic years

### Establishment

Course syllabus for MJ1450 valid from Spring 2009

### Grading scale

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

### Education cycle

First cycle

### Main field of study

Technology

### Language of instruction

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

## Intended learning outcomes

After completing the course the student should be able to:

- With support from the concepts of system technology, describe the design and interaction between different parts within the system
- Describe the processes within systems engineering according to the ISO standard 152 88 and explain their objectives and context
- Describe the leadership in a processoriented work environment
- Explain the role of the director in systemwork
- Distinguish between different kinds of leadership and conclude which type of leadership that is applicable to different phases in the materialprocess
- Describe the roles of projectleader, project owner and the director's role as quality manager
- Describe the quality concept and the tools used for quality leadership
- Combine knowledge in systems engineering with his/her technical competence from earlier education and experiences
- Assess the capacity of a system to meet the requirements within applications where the students have necessary technical competence (earlier education and experience)
- Explain and motivate (orally) central questions and standpoints within systems engineering and leadership
- Apply the principles of good leadership within the course

## Course contents

The course consists of 65 h of lectures, seminars, reflectionhours and groupassignments. Some of these activities require that parts of the course literature have been prepared. The course starts with a block of lectures about system engineering and thereafter specialists and leaders from industry and authorities are invited as guest lectures to share their respective experiences. Project and quality leadership are included in the form of lectures, group work and discussions. It is expected that the student is well prepared for each groupsession.

## Specific prerequisites

At least 120 hp at technical university or corresponding education.

The student does not need to study within the energy or environment field but should have experience from system studies within any technology area.

## Course literature

(1) "Systems Engineering, coping with complexity", Stevens, Brook, Jackson, Arnold, Pearson Education, ISBN 0-13-095085-8

(2) "Den femte disciplinen", Peter M Senge

(3) "Projektledningsmetodik" T. Jansson, L. Ljung, Studentlitteratur, ISBN 91-44-03359-1

(4) "Kvalitetsstyrning med total kvalitet", L. Sandholm, Studentlitteratur

(5) Handouts

## Examination

- TEN1 - Examination, 4.5 credits, grading scale: P, F
- ÖVN1 - Exercises, 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.

## Other requirements for final grade

Assignments (1.5 hp) grading P/F

Exam (4.5 hp) grading A-F

## 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.