



# AL125X Degree Project in Energy and Environment, First Cycle

## 15.0 credits

Examensarbete inom Energi och Miljö, grundnivå

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

### Establishment

Course syllabus for AL125X valid from Autumn 2015

### Grading scale

P, F

### Education cycle

First cycle

### Main field of study

Technology

### Specific prerequisites

At least 120 credits of which 60 credits with specialisation at first cycle level in the main field of study as well as qualifying courses for the technical profile the student has chosen.

### Language of instruction

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

## Intended learning outcomes

After completed degree project, the student should be able to

1. demonstrate knowledge of the disciplinary foundation of the chosen subject area, applicable methods and orientation in current research and development and show advanced knowledge within some part of the subject area
2. demonstrate the ability to search, collect and use relevant information critically and identify one's needs of additional knowledge
3. demonstrate the ability to formulate, assess and handle problems and critically discuss phenomena, issues and situations
4. demonstrate the ability to plan and carry out assignments with applicable methods within given time frames
5. demonstrate the ability to account for and discuss information, problems and solutions, orally and in writing in dialogue with different groups
6. demonstrate the ability to make assessments considering relevant scientific, social and ethical aspects
7. show the skills that are required for working independently within some part of the technical field of study

Apart from the established aims above for degree project for Degree of Bachelor, there are specific aims according to the following: After completed degree project, the student should be able to

Theoretical specialisation:

- describe and analyse concepts and theories in sustainable development from both ecological, social and economic aspects.
- suggest and justify strategies and measures for different ways to overcome barriers for a sustainable development from a system-analytical and socio-technical perspective.
- state and describe the policy instruments and tools that are used in the industry and society to decrease the pressure on sustainable development from a product or activities.
- reflect on the engineer's role for a sustainable development.

Academic work:

- demonstrate the ability to work independently as well as in small groups.
- analyse the need of scientific information, carry out information retrieval as well as evaluate the received information.
- present work in a written report with requirements on contents, structure and language.
- refer to sources, figures, tables and formulae in an established way in a report.
- write a report summary in English with correct use of the terminology of the subject.
- carry out oral presentations with requirements of time management and clarity in language, performance and illustrations

Practical application:

- formulate problems and apply methodology in the subject area sustainable development combined with student's technical specialisation to search and evaluate solutions.
- apply knowledge and skills that have been acquired during the education on sustainable development problems
- plan one's own work so that given goals are reached.
- demonstrate the ability to integrate and reflect on sustainable development in the chosen technical specialisation
- satisfy the aims the chosen specialisation set on the project
- carry out a qualitative and/or quantitative sensitivity analysis on the results

## Course contents

The advanced study project intends to develop the ability of the engineering student to independently, distinguish, formulate, plan and structure, the implementation a delimited task in the subarea Sustainable development/Industrial ecology in a scientific way and to document in writing and present this work orally. In the study project, the ability of the engineering student to carry out an independent project and present this orally and in writing is trained.

Degree project that is common to all profiles in the engineering programme Energy and Environment, reflects the overall view of the programme and provides an application of the concept sustainable development in the chosen technical specialisation. To achieve an integration within the programme, the degree project will contain both a theoretical specialisation in sustainable development and an application in the chosen technical field.

The theoretical specialisation is common to all students in the programme. This part should give definitions, concepts and scientific methodology because the student should be able to integrate the view in his engineering work.

The practical application is a technical project application in in the different engineering profiles that the programme offers. An important part in the project work is the integration of sustainable development. This integration should be clarified partly in the project report and partly by the student writing a reflection about how sustainable development has been integrated. The integration should be shown in the provided project description. The projects can be connected to the industry, or the society, but the implementation takes place mainly at KTH. The practical application is carried out at the school responsible for the engineering profile the student has chosen. Supervisor for the project work is appointed by the respective school. The oral presentation of the project work takes place at a presentation session that is common for the Energy and Environment programme and constitutes an important part of the programme identity.

## Disposition

AL125X replaces MJ153X.

## Course literature

Depends of chosen project task

## Examination

- XUPP - Examination, 15.0 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.

XUPP- Examination assignment, 15.0 credits

## Other requirements for final grade

Grading scale: P/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.