



# AL227X Degree Project in Industrial Ecology, Second Cycle 30.0 credits

Examensarbete inom industriell ekologi, avancerad nivå

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

## Establishment

Course syllabus for AL227X valid from Autumn 2015

## Grading scale

P, F

## Education cycle

Second cycle

## Main field of study

Mechanical Engineering, Environmental Engineering

## Specific prerequisites

At least 60 credits on the master's programme of which 30 credits with specialisation at second cycle level in the main field of study. To the KTH the joint requirement is added that the student is passed on at least 6 credits in the in the area Industrial Ecology of an advanced course relevant for the examination assignment that should be made. The examiner decides together with the supervisor if the entry requirements are fulfilled.

For engineering, it is required that at least 240 credits should be completed, before the degree project may be started as well as that the conditions for studies in year 5 are fulfilled

## 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 and understanding of the scientific foundation and best practices for the chosen subject, as well as an advanced understanding of current research and development within the area and in-depth knowledge of research methodology.
2. demonstrate the ability to search, create and integrate knowledge and to identify if there is a need for additional knowledge, all with a holistic, critical and systematic work approach.
3. demonstrate the ability to identify, analyse, assess and handle complex phenomena, issues and situations also with limited information
4. demonstrate the ability to plan and with adequate methods carry out qualified assignments within given time frames and to evaluate this work
5. demonstrate the ability to develop and evaluate products, processes, systems, methods or technical solutions with respect to humans' circumstances and needs as well as society's goals in term of economically, socially and ecologically sustainable development.
6. demonstrate the ability, both orally and in writing, in dialogue with different groups, to clearly explain and discuss conclusions and the knowledge and arguments on which these are based
7. demonstrate the ability to make assessments considering relevant scientific, social and ethical aspects
8. show such skill that is required to participate in research and development or to work independently in other qualified activities

## Course contents

Industrial Ecology is a modern interdisciplinary approach to the environmental problems of today. The starting point is the understanding that sustainable development is reached in the world only when technical, economic and social development takes place within the scope of the long-term supporting capacity of the ecosystems. The role and application of technology for a resource-efficient and environmentally sound social development is central for ensuring sustainability. For the degree project in Industrial Ecology applications (strategies, tools and methods) are mainly within fields such as urban and industrial metabolism, environmental system analyses, environmental management, environmental impact assessment, environmental technology as well as applications of sustainable development on technical development and technical systems.

Proposed degree projects can be found on the department's webpage. Proposals for degree projects can be formulated by students, companies or teachers. Priority is given to projects connected to the research domains of the division.

The degree project should include literature studies, theory and method description, experimental or theoretical study with performance analysis. The time needed should correspond to 20 weeks of full-time studies.

The degree project should result in a report that reflects a scientific working methodology. The degree project is presented at a seminar. At the seminar, examiner and peer reviewers participate as well as possibly external representatives. The student should also peer review another student's thesis.

## Disposition

AL227X replaces MJ273X.

## Course literature

Literature depends on chosen degree project task

## Examination

- XUPP - Examination, 30.0 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, 30 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.