



ME2036 Industrial Dynamics, Advanced Course 6.0 credits

Industriell dynamik, avancerad kurs

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 ME2036 valid from Autumn 2007

Grading scale

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

Education cycle

Second cycle

Main field of study

Industrial Management

Specific prerequisites

At least 12 hp courses on Second-level in the field of industrial economics/management of which at least one of the Second-level courses should be from the Industrial Dynamics track, i.e./ME2033 or ME2034

Language of instruction

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

Intended learning outcomes

The aim of the course is to:

- * provide an in depth knowledge on the mechanisms behind industrial and technical change/transformation with a broad focus on the knowledge formation processes involved.
- * make the students familiar with the research frontier in the area of industry, engineering, innovation and technology analyses, research processes and policy, and evolutionary industrial processes and the formation of dynamic firms.
- * provide the knowledge base necessary for independent qualified analyses – and management/implementation - of processes, policies and strategies related to industrial and technical change on different systems levels.

Course contents

This in depth course is focused on the creation of knowledge, competence, competitiveness and capabilities in relation to industry, science and technology. Knowledge formation in industry, science and technology take place on many systems levels – more or less influenced by economic, professional and cultural forces - which together contribute to the transformation process which may be more or less influenced by policy and management. The role of R&D and science is thus integrated in a more general framework for knowledge formation. The measurement of these processes as well as their relation to economic growth and competitiveness is also studied in the course. The phenomena discussed above are also related to an in depth analyses of the theory of dynamic capabilities which integrate evolutionary (innovation) theory with theory of the firm. The use/abuse/relevance of evolutionary approaches in innovation studies will also be critically analyzed in this course

The course is based on innovation theory, on endogenous growth theory and on the new theory of the (resource based) firm and its dynamic capabilities. It also integrates theories of knowledge formation and learning in firms and technical systems as well as the Science and Technology Studies discourse.

The teaching consists of lectures and seminars.

Course literature

Nelson & Winter, 1982, *An Evolutionary Theory of Economic Change* (selected chapters or equivalent texts)

Faulkner, 1994, "Conceptualizing Knowledge Used in innovation: A Second Look at the Science-Technology Distinction and Industrial Innovation"

Selection of approx. 12 qualified research papers and book chapters on advanced innovation theory, dynamic capabilities, endogenous growth theory, science & technology studies. Part of the selection may be done according to individual interests of the student.

Examination

- SEM1 - Seminars, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 4.5 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.

Other requirements for final grade

Active participation in seminars and approved delivery of seminar/working papers (SEM1; 1,5hp). Approved written final examination (maybe in the form of a home examination) (TEN1; 4,5hp).

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.