



ME2001 Research Methods in Industrial Engineering and Management 7.5 credits

Forskningsmetod inom industriell ekonomi

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

Establishment

Course syllabus for ME2001 valid from Autumn 2018

Grading scale

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

Education cycle

Second cycle

Main field of study

Industrial Management

Specific prerequisites

Bachelor degree. Admitted to the master program in Industrial management (TINEM).
At least 45 ECTS from the master program in Industrial management (TINEM)

Language of instruction

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

Intended learning outcomes

After passing the course, the students should be able to:

- Explain and apply different research traditions within the field of industrial engineering and management.
- Understand preconditions and framework for academic studies in industrial engineering and management.
- Analyse and apply central terms and concepts in research methodology in the field of industrial engineering and management.
- Critically analyse and assess the value and the reliability of empirical and theoretical studies with a focus on the benefits of the research for both academia and industry.
- Make assessments regarding ethical and sustainability aspects in ones own research and that of others.
- Critically and creatively identify and formulate research issues with usefulness for both academia and industry.
- Independently plan and investigate research issues with adequate method choices in industrial engineering and management.
- Apply qualitative and quantitative methods and models that are included in e g case studies, questionnaires and mathematical studies.
- Implement acquired knowledge in a practical investigation plan that satisfies requirements from both academia and industry.

Course contents

The course builds on the methodology knowledge that the student developed within the scope of the first cycle thesis project. Certain course components are coordinated with and connected to course components in ME2502 Change project in Industrial Management. Special focus is set on giving each student extensive knowledge of how to exploit scientific methods and research results within academia as well as industry, with special focus on technology intensive activities. The course contains lectures, seminars and other learning activities within the following fields:

- Theory of science, classification of research and research processes.
- Practical support for choice of subject for degree project, data collection (access to empiricism), project planning etc
- Design of investigation and study according to different scientific approaches.
- Qualitative and quantitative methods for collection and analysis of data.
- Examples of ongoing research in industrial engineering and management.
- To critically review and analyse quality of scientific texts and articles.

- Discuss and critically review examples of degree projects and experiences from previous students and supervisor.
- To design and plan a degree project at advanced level, including theoretical problem formulation of industrial problems and choices of method.
- Conduct literature studies, source criticism, plagiarism, and in writing argue for and identify his/her research gap.
- Develop present and argue for an investigation plan (thesis proposal) both in writing and orally.

Disposition

The course is organised with literature, lectures, seminars and learning activities.

- The lectures mix theory sessions with discussions on scientific process and product.
- The learning activities are carried out both in groups and individually and include several theoretical and practical components, e.g.: search, choice and comparative analysis of articles and design of fictitious or real investigation plans for a degree project (thesis proposal), exercise in qualitative and quantitative methods.
- Feedback on written assignments is mainly given through a peer review seminar, but also at a follow-up session in class.

Course literature

Textbook/(s) on research methodology.

Selected research articles.

Reading will be specified at the beginning of the course.

Examination

- PRO1 - Project, 2.5 credits, grading scale: P, F
- INL2 - Assignment, 1.0 credits, grading scale: P, F
- SEM3 - Seminar assignment, 3.0 credits, grading scale: P, F
- INL3 - Assignment, 1.0 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.

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.