



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.

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

Establishment

Course syllabus for ME2001 valid from Autumn 2014

Grading scale

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

Education cycle

Second cycle

Main field of study

Industrial Management

Specific prerequisites

Accepted to second year of master programs TINEM and TIEMM.

Open only for TINEM2 and TIEMM2

Language of instruction

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

Intended learning outcomes

After this course the students should be able to:

- Describe different research traditions in Industrial Engineering and Management.
- Describe specific conditions like criteria and boundaries for scientific studies in Industrial Engineering and Management.
- Analyze and apply key terms and concepts in research methodology theory.
- Critically analyze and assess the value and reliability of empirical and theoretical investigations.
- Make assessments of ethical and sustainable aspects of one's own and others' research.
- Critically and creatively identify and formulate research problems.
- Independently plan and solve research problems using appropriate methodology.
- Apply qualitative and quantitative methods commonly used in i.e. case-, survey- and experimental studies.
- Apply acquired knowledge into a Thesis Proposal that may be put in practice.

Course contents

The course includes lectures, seminars and learning activities in the following areas:

- Theory of science, various ways to classify research and the generic research process.
- Practical guidance for research topic selection, for example challenges to get access to empirical data and do the project planning.
- Design of appropriate studies depending on different disciplinary approaches.
- Qualitative and quantitative methods for collecting and analyzing data.
- Examples of ongoing research in Industrial Engineering and Management represented by the Industrial Economics and Management department.
- Practicing to critically review the quality of international scientific journal articles and other academic products.
- Examples of experiences and earlier theses work from previous students and supervisors.
- Designing a thesis project, including formulating a theoretical problem from a specific industrial and technical problem and making methodological choices.
- Conducting literature reviews, including source criticism, plagiarism and how to write argumentative text that derives in a research gap and research questions.
- Presenting a thesis proposal in writing and orally.

Disposition

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

- The lectures mix theory with discussion about scientific process and product.
- Learning activities take place both in groups and individually, and include several theoretical and practical elements such as: search, select and make a comparative analysis of articles, design of a fictional or real thesis proposal, exercises on qualitative and quantitative methods.
- Feedback on assignments is given primarily in a seminar format and through peer review in writing and in group work.

Course literature

Collins, J. & Hussey, R. (2009). Business Research. A Practical Guide for Under- and Post-Graduates. Fourth edition. Palgrave.

Konsten att vara vetenskaplig (2007), kompendium, Sven Ove Hansson, KTH.

Internationella tidskriftsartiklar 6-8 stycken.

Forskningsdatabaser som: Google Scholar, Scopus, Web of Science.//

Collins, J. & Hussey, R. (2009). Business Research. A Practical Guide for Under- and Post-Graduates. Fourth Edition. Palgrave.

Hansson Sven-Ove (2008) The art of doing science, KTH report.

6-8 International journal articles

Research databases: Google Scholar, Scopus, Web of Science

Examination

- INL1 - Assignment, 2.0 credits, grading scale: P, F
- RAP1 - Report, 2.5 credits, grading scale: A, B, C, D, E, FX, F
- TEN2 - Exam, 3.0 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.

The course is examined as follows:

- Learning activities, hand-in assignments and participation in seminars, (INL1)
- Thesis proposal (RAP1)
- Written exam (TEN2)

Learning activities, hand-in assignments and thesis proposal is most commonly conducted in pairs or in groups to increase collaboration, discussions and learning. The exam is designed to assess knowledge also individually. The exam is built on the main parts of the course content i.e. theory, practice, qualitative assessment of scientific level of research and of scientific reports, and all parts included in a thesis proposal.

Other requirements for final grade

The course is examined through compulsory seminars and written tasks which total 7,5 hp. The requirements for final grade are:

- Passing all hand-in assignments in the learning activities
- Active participation in mandatory seminars.
- Passing grade on thesis proposal.
- Passing the exam.

The final grade of the course is graded according to A-F scale and encompasses the weighed outcomes of the thesis proposal (RAP 1; weighted 40%) and final examination (TEN2; weighted 60%)

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.