



MG2100 Scientific Methodology for Production Engineering 7.5 credits

Vetenskaplig forskningsmetodik inom industriell produktion

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 MG2100 valid from Spring 2019

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Admitted to the Master programme in Production Engineering and Management (TPRMM) or the technical profile Integrated Production Engineering in the Master programme in Industrial Engineering and Management (TIEMM IPIB)

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 student will be able to:

- account for the nature of production engineering research in relation to the two main domains: scientific methodology and engineering design processes, and outline their importance and use in the context of production engineering.
- Discuss and elaborate original thoughts on several aspect of the scientific domain.
- Analyze a scientific text, criticizing the research question, method and conclusions.
- Structure, execute and document a research endeavor.
- Discuss the origin of the scientific method as result of the evolution of the human approach to the main philosophical problems. The emphasis is on the sociological and economical problems.
- Gather information and elaborate a strategy to qualify and defend an opinion on a controversial topic. Analyze and summarize the consequent debate.

Course contents

Scientific theories

Problem formulation and delimitations

Experiments, models and validation methods

Research ethics

Production engineering as a science

Scientific papers and peer review

Course literature

Downloadable from the LMS for registered course participants

Examination

- LIT1 - Analysis of a scientific text, 1.5 credits, grading scale: P, F
- SEM1 - Active participation in seminars, 1.5 credits, grading scale: P, F
- TEN1 - Written exam, 3.0 credits, grading scale: A, B, C, D, E, FX, F

- ÖVN1 - Debate Exercise, 1.5 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.

Other requirements for final grade

Active participation in seminars (SEM1; 1,5 cr)

Approved individual essay (INL1; 3 cr)

Approved project work (PRO1; 3 cr)

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.