



Course syllabus

Faculty of Technology

Department of Mechanical Engineering

4MT042 Metoder i arbete, 7,5 högskolepoäng

Methodology in Project Work, 7.5 credits

Main field of study

Mechanical Engineering, Forest and Wood Engineering

Subject Group

Mechanical Engineering

Level of classification

Second Level

Progression

A1F

Date of Ratification

Approved 2014-10-14

Revised 2020-06-12 by Faculty of Technology. Literature list is revised.

The course syllabus is valid from autumn semester 2020

Prerequisites

General entry requirements for studies on second level, and specific entry requirements: 90 credits within the main field of Mechanical Engineering/Forest and Wood Technology (including a Degree Project of at least 15 credits), 5 credits on the second level (within Innovation through Business, Engineering and Design - specialisation Engineering), and English B/English 6 or the equivalent.

Objectives

After finished course, the student is expected to be able to:

- describe, explain and apply different disciplines (technicians, economists, designers) methods and tools
- describe and evaluate different methods in previous research of relevance to a specific project
- argue for the choice of empirical material and the procedure for the gathering of material
- analyze, interpret and evaluate research based on scientific, social and ethical aspects
- individually apply and distinguish appropriate presentation techniques for selected projects

Content

The course consists of the following parts:

- methods and tools of designers, economists and engineers
- research ethics
- validity, reliability, generalization
- the role of theory in scientific studies
- conducting research work
- presentation skills

Type of Instruction

Teaching is carried out using lectures, workshops and seminars. Obligatory parts are stated in the schedule.

Examination

The course is assessed with the grades A, B, C, D, E, Fx or F.

The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student's performance is assessed as fail (i.e. received the grade F).

The examination is based on exercises and written and oral examinations.

Students who do not achieve a satisfactory result in the examinations are permitted to make a second attempt approximately 5-8 weeks after the normal examination date.

Course Evaluation

A written course evaluation is carried out and compiled in a report, which is archived at the faculty. The results and possible measures taken are communicated by the course coordinator and presented to the students the next time the course is given, or in another way deemed suitable by the course coordinator. Other types of course evaluations, for example regular evaluations throughout the course or discussions with students, will be included and encouraged with the aim of ensuring continuous quality development.

Credit Overlap

The course cannot be included in a degree along with the following courses of which the content fully, or partly, corresponds to the content of this course: 4MT041 Methodology in Project Work, 7,5 hp to 100%.

Other

Grade criteria for the A–F scale are communicated to the student through a special document. The student is to be informed about the grade criteria for the course by the start of the course at the latest.

Required Reading and Additional Study Material

Required reading

Barbour, Rosaline. *Doing focus groups*. Sage, 2008. 177 pages

Bryman, A. & Bell, E. *Business Research Methods*. Oxford University Press. New York. Senaste upplagan. 808 pages.

Curedale, Robert. *Design thinking –process and methods manual*. Design Community College Inc. Senaste upplaga, 383 pages

Kumar, Vijay. *101 Design Methods –A Structured Approach for Driving Innovation in Your Organization*. John Wiley & Sons, Inc. Senaste upplaga. 325 pages

Petroski, Henry. *Invention by Design -How Engineers Get from Thought to Thing*. Harvard University Press 1998, 256 p

Thiel, David V. Research Methods for Engineers. Cambridge University Press 2014,306 p

Yin, R. K. (2017). Case study research and applications: Design and methods. Sage publications. 352 p

Scientific articles. About 150 pages.

Reference literature

Hannington, B. & Martin, B. Universal Methods of Design –100 Ways to Research Complex Problems Develop Innovative Ideas and Design Effective Solutions. Rockport Publishers Inc. Senaste upplagan. 208 pages.

Mundford, Michael. Handbook of Organizational Creativity, AP Elsevier, 2012. 737 pages

Schön, Donald. A. The Reflective Practitioner. Ashgate Publishing Limited. Senaste upplagan. 384 pages