LR2001 Theory, Methods and History of Engineering Sciences 7.5 credits

Teknikvetenskapens vetenskapsteori och idéhistoria

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 LR2001 valid from Spring 2019

Grading scale

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

Education cycle

Second cycle

Main field of study

Technology and Learning

Specific prerequisites

Lowest Bachelor's degree

Language of instruction

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

Intended learning outcomes

On completion of the course, the student should be able to:

- Illustrate and account for some of the trends in the emergence of the global science community

- Account for and compare the fundamental features of some of the classical theories of knowledge

- Identify some common research approaches and reflect around strengths and weaknesses in these approaches

- Be able to formulate an individual research plan including ethical considerations and explain the chosen

research approach by relating to perspectives and attempts in the course

- Formulate constructive criticism/feedback to other course participants (presentations and projects)

Course contents

Part 1: The history of ideas in the technological sciences, (2.5 credits)

The emergence of the global science community

Scientific theoretical classics

Part 2: Theory and method in the technological sciences (5 credits)

The research process (academia/industry, technology-enhanced learning, cultural aspects)

Qualitative and quantitative aspects on research methods, such as

o Questionnaire studies

o Interview studies

o Textual analysis

o Observational studies

o Ethnographic studies

o Case studies

Action/Design-based research

Research ethics

Disposition

The course can be coordinated with the course FLF3002

Course literature

Cohen, L., Manion, L. Morrison, K. (2011) Research Methods in Education, Routledge

Latour, B. (1987) Science in Action, How to Follow Scientists and Engineers through Society. Cambridge Mass. Cambridge University Press

Kuhn, T. (1996) The Structure of Scientific Revolutions. 3rd Edition The University of Chicago Press Chicago and London

Marshall, C. & Rossman, G. (2006) Designing Qualitative Research. 4th edition. Sage

samt ett urval artiklar/texter enligt överenskommelse med kursledningen

Examination

- INL1 - Written Exams, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- SEM1 - Seminars, 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.

- Attendance and active participation in compulsory lectures, seminars and examinations

- Written research memo (2-3 A4) including complete references

- Oral presentation of one's own research memo

- Review of another research memo on at at least one occasion

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.