LT1039 Development and Learning in Science and Technology 6.0 credits

Ungdomars utveckling och lärande i naturvetenskap och teknik

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

Establishment

On 17/4/2023, the Dean of the ITM School has decided to establish this official course syllabus to apply from autumn semester 2023 (registration number M-2023-0878):

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

LT1036 Learning as Professional Assignments

Language of instruction

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

Intended learning outcomes

All students should be able to on completion of the course

1. interpret and discuss course syllabuses and subject plans in scientific and natural science subjects and the technology subject

2. discuss differences and similarities in cognitive approach between scientific subjects and the technology subject

3. analyse the preconditions of various learning environments for teaching of science and technology based on regulatory documents and didactic research

Students who take the elective item of technology didactics should on completion of the course furthermore be able to

4. interpret and discuss course syllabuses and subject plans for other subjects than technology that also have technical contents and deal with for example programming, design or community planning

5. discuss pupils' development of knowledge in the subject technology based on the knowledge progression that is described in regulatory documents

6. plan a teaching component in technology with elements of investigatory working methods and/or technical development for a given group of pupils

7. give an account of and justify how different technical aids can support the learning of adolescents in technology

8. account for, analyse and problematise specific contents with a focus on sustainable development in the technology tuition

Students who take the elective item of science didactics should on completion of the course in addition to intended learning outcomes 1-3 also be able to

9. discuss pupils' development of knowledge in physics and/or chemistry based on the knowledge progression that is described in the regulatory documents

10. plan a teaching component in chemistry or physics with elements of investigatory working methods for a given group of pupils

11. give an account of and justify how different technical aids can support the learning of adolescents in physics and/or chemistry

12. account for, analyse and problematise specific contents with a focus on sustainable development in chemistry and/or physics tuition

Course contents

The course covers learning and teaching of science and technology for the upper secondary school, based on current regulations and relevant research in the didactics of the natural science and technology subjects. The course also covers the nature and special character of the school subjects and the development and learning of adolescents. How teaching can be organised by means of laboratory elements and supported by technical aids such as information and communication technology (ICT), is treated in relation to didactic research on pupils' learning, and proven experience.

Examination

- SEM1 - Introductory seminars on teaching and learning in technology and the natural sciences, 2.0 credits, grading scale: P, F
- INLA - Teaching and learning in the natural sciences, 4.0 credits, grading scale: A, B, C, D, E, FX, F
- INLB - Teaching and learning in technology, 4.0 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.

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

Other requirements for final grade

Participation in compulsory seminars

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.