LL140U Technology for teachers in grades 7-9 45.0 credits

Teknik för lärare i åk 7-9

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

Establishment

The official course syllabus is valid from the autumn semester 2024 in accordance with the decision by the Head of School: M-2024-0272. Date of decision: 2024-02-08

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

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 should be able to:

1. plan and evaluate teaching in Technology in Years 7–9 of compulsory school following the requirements of the curriculum

2. reflect on the contents and the distinctive features of the Technology subject in the primary and lower secondary school – its aims, traditions, history, approach to knowledge, and forms of instruction

3. apply formative and summative assessment in the Technology subject

4. use information and communication technology as aids for planning, implementation and evaluation of technology instruction

5. apply an inquiry-based approach in Technology instruction

6. carry out small-scale design and/or development projects in a structured manner

7. sketch, draw and/or model three-dimensional objects

8. analyse how technology is related to social progress, science, and working life, considering aspects such as gender, health, culture, and material prosperity – in the past and present

9. create and test simple computer programs in visual and text-based programming environments

10. discuss programming and other skills related to information and communication technology from an educational perspective.

11. identify and describe large technical systems – their structure, possibilities, vulnerability and risks

12. account for how the energy systems in Sweden and internationally have developed up until today

13. analyse different perspectives on sustainable development, and plan compulsory school Technology teaching in which these perspectives are highlighted

In order to

- be able to responsibly teach the Technology subject to pupils in Years 7–9 of compulsory school following the requirements of the curriculum, with science and proven experience as a starting-point
- develop, in the pedagogical activities, skills that are valuable to the professional practice
- identify their need for additional knowledge and develop their skills in the pedagogical work

Course contents

The course is intended to develop knowledge and skills so that the student can work as a teacher of Technology in Years 7–9 of compulsory school. The scope of the Technology

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subject in compulsory school is wide, which is reflected in this course. The main course content is:

Within the area of technology didactics: technology instruction in school in the past and present; planning and assessment in the Technology subject; teaching strategies and teaching methods in technology in general and in the themes of the course in particular; how the Technology subject relates to other school subjects; equal opportunities and equality; and current research in technology education

In the area of design and product realisation: project planning, sketching and drawing techniques, materials science, prototype production, design.

In the area of technology, mankind, society and environment: the history of technology, environmental history, relations between societal and technical development. The detailed content is to a great extent characterised by the current research at the Division of History of Science, Technology and Environment

In the area of digital skills and programming: basic programming in text-based and visual environments; central concepts in computer science; troubleshooting and testing; control via programming; views on what computational thinking and digital competence may imply in school.

In the area of energy technology: energy sources, electricity production, the electric distribution system, risks associated with the electrical power system.

In the area of sustainable development: different perspectives on sustainability and environment; system thinking; system perspectives on the environment and technical development; and sustainable development as subject contents and as an organisational principle for the technology subject.

Examination

- INL1 - Written assignment in technology education, 5.0 credits, grading scale: A, B, C, D, E, FX, F
- INL2 - Written assignment in design and product development, 5.0 credits, grading scale: A, B, C, D, E, FX, F
- INL4 - Written assignment in computer programming, 5.0 credits, grading scale: A, B, C, D, E, FX, F
- INL3 - Written assignment in the history of technology, 5.0 credits, grading scale: A, B, C, D, E, FX, F
- INL5 - Written assignment in energy systems, 5.0 credits, grading scale: A, B, C, D, E, FX, F
- INL6 - Written assignment in sustainable development, 5.0 credits, grading scale: A, B, C, D, E, FX, F
- SEM1 - Technology education seminars, 2.5 credits, grading scale: P, F
- SEM2 - Design and product development seminars, 2.5 credits, grading scale: P, F
- SEM3 - History of technology seminars, 2.5 credits, grading scale: P, F
- SEM4 - Computer programming seminars, 2.5 credits, grading scale: P, F

- SEM5 - Energy systems seminars , 2.5 credits, grading scale: P, F
- SEM6 - Sustainable development seminars, 2.5 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.

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

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.