Linnæus University

Jnr: 2017/6587-3.1.2.2

Course syllabus

Faculty of Technology
Department of Physics and Electrical Engineering

1TG111 Teknik för lärare, 7,5 högskolepoäng
Technology for Secondary School Teachers, 7.5 credits

Main field of study
Technology

Subject Group
Other Subjects within Technology

Level of classification
First Level

Progression
G1N

Date of Ratification
Approved 2009-08-11
Revised 2017-11-13 by Faculty of Technology. Removal of ECTS-grading scale.
The course syllabus is valid from spring semester 2018

Prerequisites
General entry requirements and Chemistry 1, Mathematics 3c, Physics 2 or Chemistry A, Mathematics D, Physics B (Field-specific entry requirements 8/A8).

Objectives

Having completed the course the student is expected to be able:

- to describe the character of technology as a human activity and an area of knowledge as well as its relation to other areas of knowledge and to society in general
- to describe how, in the teaching situation, it is possible to link the technological items to gender and sustainable development in current and historical contexts
- to plan, introduce and allow pupils to work with practical problem solving, including problem identification, construction and evaluation following various teaching models and methods according to the pupils' differences
- to use technical concepts and principles as well as scientific explanation models in order to be able to show the connection and processes in a technical construction or a technical system
- to be able to use ICT as a tool in the educational work
- to follow up and evaluate the quality and progression of the pupils' knowledge as well as the use and evaluation of different methods to judge the pupils' knowledge of technology with regard to the goals in the the local and national governing documents
- to describe and reflect upon the different didactic choices with regard to local and national governing documents.

Content

The course includes following elements:

- the aim of the technology and its role in education
- the culture of technology and how technology in the past and the present influences people, society and nature
- technology's interaction with the individual, society and the environment as well as the need, motivation and conditions that characterize the advance of technology. Together with this importance is given to gender, the environment, ethical and global perspectives
- technological problem solving, including problem identification, construction and evaluation. Theoretical and applied aspects and factors are integrated
- basic technology concepts, such as structures and mechanisms
- basic electricity concepts and risks associated with the usage of electricity
- technology application related to natural science
- problem solving and technical constructions
- presentation and communication of basic technological functions and solutions with the help of speech, writing, sketches, pictures and models
- national and local guidelines and criteria to assess the pupils' achievements
- safety issues related to activities in the classroom.

Local and national governing documents are important sources used in the course. Didactic theories are integrated in all course moments.

Type of Instruction

The course is a distance tuition course via the Internet. The students are expected to work individually and in groups. At the start of the different modules of the course the course leader/teacher presents specific reading tasks, study assignments and presentation models.

Work assignments may be presented collectively in the form of group conferences and commented on by the course leader/teacher. The work assignments may also be individually designed.

Attendance at examinations and seminars is obligatory .

Examination

The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).
Assessment takes place through oral and/or written tests and/or presentations of compulsory assignments, as well as through participation in web-based seminars. The main form of examination is decided at the start of the course. Students who do not pass the regular examinations are offered a new chance in close connection to time of the regular examination.

Course Evaluation

During the course or in close connection to the course, a course evaluation is to be carried out. The result and analysis of the course evaluation are to be communicated to the students who have taken the course and to the students who are to participate in the course the next time it is offered. The course evaluation is carried out anonymously. The compiled report will be filed at the Faculty.

Other

After having completed the course the student may download a course certificate through Ladok on Webb. Secondary they may request a course certificate from the secretary of the School of Computer Science, Physics and Mathematics.

Required Reading and Additional Study Material

Required reading

Biurulf. V. *Teknikdidaktik*. Norsteds. 2011. ISBN 978-91-1-302843-9. Pages 210 (210)

Bodanis, D, *Elektricitet – historien om universums mäktigaste kraft*, Norstedts, 2005. Pages 218 (272). ISBN 9172320249

Garratt, J, *Design and Technology*, Cambridge university press, Second edition 1996, ISBN 9780521556071. Pages 183 (314)

Kärrqvist, C, *Att undervisa om lampor och batterier*, Enheten för ämnesdidaktik, Inst. för pedagogik och didaktik. Göteborgs universitet, 2003. na-serv.did.gu.se/adip/elguide.pdf. Pages 78 (78)

Rosberg, J, *Teknik 04 – Lärarmaterial för utbildning, fortbildning och undervisning i teknik*, Peros Teknik, 2004. www. peros.se. Pages 120 (170)

Sjöberg, S, *Puls Teknik 79*, Natur och Kultur, 1997. Can be borrowed, pages 136 (164)

Skolverket, Nationella styrdokument, http://www.skolverket.se/kursplaner_och_betyg

Additional literature will be provided through web sites. Pages 100 (approx)

Literature and sample collections related to their chosen themes. Pages 100 (approx)

DFM, *Copied material*, Linnæus University, current year. Pages 50 (approx)