

SYLLABUS

Natural Sciences 7.5 credits Q0031B

Naturvetenskap

Course syllabus admitted: Spring 2014 Sp 4 - Spring 2019 Sp 3

**DECISION DATE
2014-01-16**

Natural Sciences 7.5 credits Q0031B

Naturvetenskap

First cycle, Q0031B

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	G U 3 4 5	Kemi	Chemistry

Entry requirements

In order to meet the general entry requirements for first cycle studies you must have successfully completed upper secondary education and documented skills in English language + Swedish upper secondary school courses Mathematics 1a/1b/1c (specifik entry A7).

Or:

Swedish upper secondary school courses Mathematics A (specifik entry 7)

Selection

The selection is based on final school grades or Swedish Scholastic Aptitude Test.

Examiner

Anna-Carin Larsson

Course Aim

The student should after the course be able to:

- write chemical equations and perform stoichiometric calculations
- balancing the oxidation - reduction reactions
- perform simple thermochemical calculations
- describe and explain the factors that affect the reaction rate
- know and use the acid / base concepts such as pH
- have arguments and perform simple calculations on physical quantities and concepts such as speed, strength and energy
- describe and analyze some everyday phenomena and events such as simple movements, force situations and loads, energy conversion and optical phenomena using physical concepts and models
- participate in the planning and implementation of simple experimental investigations as well as oral and written report and interpret the results

Contents

The course consists of two parts: chemistry and physics.

In the chemistry part of the course basic chemistry concepts, calculations and reaction rate are described. Also the acid/base concept and the oxidation/reduction concept are studied which are important for the understanding of basic chemistry. Thermochemistry and the first and second law of thermodynamics are dealt with. Electrochemistry is also presented in the course where electrolysis and galvanic cells are studied.

In physics part deals with measurement data, uniform and accelerated linear motion, light reflection and refraction, optical imaging, force and pressure, equilibrium, force and motion, work, energy and power, thermodynamics, electric fields, and forces between charged particles and electrical DC circuits.

Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided. Written exams and laboratory reports.

Literature. Valid from Spring 2014 Sp 4

Course offered by

Department of Civil, Environmental and Natural Resources Engineering

Items/credits

Number	Type	Credits	Grade
0001	Written exam, physics	3	G U 3 4 5
0002	Laboratory work, physics	1.5	U G#
0003	Written exam, chemistry	2	G U 3 4 5
0004	Assignment reports, chemistry	1	U G#

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Last revised

by Eva Gunneriusson 2014-01-16

Syllabus established

by Eva Gunneriusson 2013-02-04