

SYLLABUS

Number Sets and Elementary Functions 7.5 credits M0061M

Tal och funktioner

Course syllabus admitted: Autumn 2023 Sp 1 - Present

**DECISION DATE
2022-02-14**

Number Sets and Elementary Functions 7.5 credits

M0061M

Tal och funktioner

First cycle, M0061M

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	U G VG	Matematik	Mathematics

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 and Discrete Mathematics (M0009M) and Differential Calculus (M0057M) or equivalent.

Selection

The selection is based on 1-165 credits.

Course Aim

The course will provide an in-depth study of the most common number sets and elementary functions as well as their properties from the perspective of school mathematics. The course provides also skills for using programming as a tool and teaching method in mathematics.

After completing the course, the student should be able to:

- account for key concepts and definitions in set theory, natural numbers, integers, and rational numbers
- explain concepts and definitions in elementary functions
- show understanding about the central properties of ordinary number sets and elementary functions also from a historical perspective
- formulate simple theorems about the properties of numbers and functions and use proofing as a teaching method in the areas of speech and functions
- use programming as a tool to present mathematical processes and concepts
- explain the properties of numbers and elementary functions with the help of programming
- motivate and analyze programming as a teaching method in mathematics.

Contents

Introduction to set theory. Elementary functions and their properties from a didactic perspective. Natural numbers, Integers. Rational numbers. Programming with Python.

Realization

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

Lectures, laboratory work, practicals, and a seminar.

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. Examination takes place through individual a written exam and a project work that is also presented orally. For a passing grade on the course, a passing grade on both the exam and the project work is required. Mandatory participation in certain elements.

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term "unauthorized aids" refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Transition terms

The course replaces M0018M

Course offered by

Department of Engineering Sciences and Mathematics

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0001	Written exam	U G VG	5	Mandatory	A22	
0002	Project work	U G#	2.5	Mandatory	A22	

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 Niklas Lehto, Programme Director 2022-02-14

Syllabus established

by Niklas Lehto, Programme Director 2022-02-14