IX1307 Problem-Solving in Mathematics 7.5 credits

Problemlösning i matematik

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

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

Establishment

The official course syllabus is valid from the autumn semester 2021 in accordance with Head of School decision: J-2021-0878.Decision date: 15/04/2021

Grading scale

P, 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

This course should give a basis to university mathematics. On completion of the course, the student should be able to:

- communicate mathematical content
- use mathematical statements (propositions, predicates, definitions, axioms, theorems)
- use and visualise basic mathematical concepts: real numbers (integers, rational and irrational numbers), complex numbers, sets, functions as well as algebraic equalities and inequalities
- use mathematical argumentation and different proof techniques
- use computer-based mathematical tools for calculation and visualisation

Course contents

Mathematical logic, mathematical definitions, basic number theory, sets, functions, mathematical axioms, algebraic equalities and inequalities, visualisation in mathematics, complex numbers, mathematical argumentation, mathematical proofs and proof models, generalisation of mathematical statements, use of computer-based mathematical tools

Examination

- INL1 - Hand-in assignments, 4.5 credits, grading scale: P, F
- TEN1 - Exam, 3.0 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.

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.