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

Course syllabus for IX1307 valid from Autumn 2018

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 foundation to university mathematics. On completion of the course the student should be able to:

- communicate a mathematical content
- use mathematical definitions, theorems, and axioms
- use mathematical argumentation and various proof-techniques
- use and visualize fundamental mathematical concepts: real numbers (integers, rational and irrational numbers), complex numbers, sets, functions, and algebraic equalities and inequalities
- use computer-based mathematical tools for calculation, visualization and modelling
- examine the correctness, precision and relevance of mathematical models and calculations.

Course contents

Mathematical logic, mathematical definitions, algebraic equalities and inequalities, visualizations in mathematics, real functions with one real variable, complex numbers, mathematical argumentation, mathematical proofs and proof models, basic number theory, generalization of mathematical statements, using computer-based mathematical tools.

Course literature

- Fadil Galjic: Diverse articles.
- Robert Adams and Christopher Essex: Calculus: A Complete Course, 8th Edition. Pearson, 2013.

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.