



SF1613 Mathematics 2 12.0 credits

Matematik 2

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

Establishment

Course syllabus for SF1613 valid from Autumn 2008

Grading scale

A, B, C, D, E, FX, F

Education cycle

First cycle

Main field of study

Mathematics, Technology

Specific prerequisites

SF1623 Mathematics I for CL.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

- To provide good skills and understanding in basic linear algebra, in calculus in several variables and in elementary vector calculus.
- To be able to apply these skills to problems in the engineering sciences.
- To encounter different modes of teaching.
- To provide skills in oral and written presentations of mathematics.

Course contents

Systems of linear equations, matrices and determinants. The vector spaces $\mathbb{R}^n$. Base and dimension. Linear mappings. Change of basis. Eigenvalues, eigenvectors and diagonalization. Quadratic forms.

Numerical series and power series.

Calculus in several variables. Continuity, differentiability, linear approximation. Partial derivatives, differentials, gradient. The chain rule. Extreme value problems. Multiple integrals, geometric applications.

Curves in the plane and curves in space. Orientable surfaces. Introductory vector calculus.

The course also connects to mathematical education by treating for example oral and written presentations of mathematics and the use of calculators and mathematical software.

Course literature

Andersson Lennart m.fl. : Linjär algebra med geometri.

Persson&Böiers/Analys i flera variabler.

LTH/Övningar i analys i flera variabler.

Examination

- TEN3 - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- TEN2 - Examination, 7.5 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 12.0 credits, grading scale: A, B, C, D, E, FX, F
- ANN1 - Assignment, 0.0 credits, grading scale: A, B, C, D, E, FX, 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.

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

Other requirements for final grade

Normally the examination consists of TEN1 (12 hp), continuous examination combined with a final written exam, and ANN1 (0 hp, compulsory) on a selected topic in the didactics of mathematics.

TEN1 may under certain circumstances be replaced by TEN2 (7,5 hp) and TEN3 (4,5 hp).

TEN2 corresponds to the following parts of the course: linear algebra, curves in the plane and curves in space and differential calculus and extreme value problems for functions of several variables.

TEN3 corresponds to series, multiple integrals and introductory vector calculus.

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.