



SF2736 Discrete Mathematics

7.5 credits

Diskret 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 SF2736 valid from Autumn 2010

Grading scale

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

Education cycle

Second cycle

Main field of study

Mathematics

Specific prerequisites

Elementary linear algebra, for example SF1604.

Language of instruction

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

Intended learning outcomes

The overall goal is to give basic knowledge in Discrete mathematics, in particular a good knowledge in elementary combinatorics, knowledge of some abstract algebraic structure and the use of it, and knowledge of some selected topics in graph theory.

After the course it is expected that the student will have achieved a better ability for treating and applying mathematics in general.

Course contents

The fundamental theorem of arithmetics, the Euclidian algorithm and a Diophantine equation. Modular arithmetics, Fermat's theorem and RSA. Functions, infinite sets and cardinal numbers. Elementary group theory, the theorem of Langrange, the symmetrical group and the lemma of Burnside. Error correcting codes, Hamming codes. Generating functions and partitions of integers. Combinatorics, multinomial numbers, Stirling numbers, the sieve principle and the Moebius inversion formula. Elementary graph theory, coloring problems, matchings in bipartite graphs, flows and cuts.

Course literature

Biggs: Discrete Mathematics, 2:nd ed.

Examination

- TEN1 - Examination, 7.5 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.

TEN1-written examination, 7.5 hp, Grades A-F.

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.