IX1500 Discrete Mathematics 7.5 credits

Diskret matematik

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

Establishment

Grading scale

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

Education cycle

First cycle

Main field of study

Mathematics, Technology

Specific prerequisites

- Knowledge in algebra and geometry, 7.5 credits, corresponding to completed course SF1697/IX1303.
- Knowledge and skills in problem-solving in mathematics, 7.5 credits, corresponding to completed course SF1695/IX1307.

Intended learning outcomes

After passing the course, the student should be able to

- formulate, analyse and solve problems in discrete mathematics that is of importance in the area of information and communication technology
- apply and develop discrete models by means of a mathematical programming language
- critically review and comment a given solution to a problem
- comment a discrete model and suggest improvements
- present solutions to given discrete problems both orally and in writing in a mathematically correct way.

Course contents

Combinatorics, set theory and inclusion and exclusion, integer, divisibility, induction and recursion, functions and relations.

Introduction to groups, rings, bodies and the theorems of Fermat's and Euler's, the Chinese Remainder Theorem

Graph theory: isomorphic trees, walks and searches, Euler graphs, Hamilton graphs, planar graphs, colouring and chromatic number.

Examination

- INL1 - Problem Assignments, 4.0 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Written examination, 3.5 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.

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

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.