IX1500 Discrete Mathematics 7.5 credits

Diskret matematik

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

Establishment

On 04/15/2021, the Head of the EECS School has decided to establish this official course syllabus to apply from autumn semester 2021, registration number: J-2021-0592.

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 IX1303.
- Knowledge and skills in problem-solving in mathematics, 7,5 credits, corresponding to completed course IX1307.

Active participation in a course offering where the final examination is not yet reported in Ladok is considered equivalent to completion of the course.

Registering for a course is counted as active participation.

The term 'final examination' encompasses both the regular examination and the first re-examination.

Language of instruction

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

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.

The examination is written.

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.