Discrete Mathematics

Programme course

4 credits

Diskret matematik

TADI03

Valid from: 2017 Spring semester

Determined by
Board of Studies for Computer Science
and Media Technology

Date determined
2017-01-25

Main field of study
Mathematics, Applied Mathematics

Course level
First cycle

Advancement level
G1X

Course offered for
- Computer Engineering, B Sc in Engineering
- Chemistry

Entry requirements
Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

Intended learning outcomes
To give tha basic knowledge of discrete mathematics that is needed for further courses in mathematics, natural and computer science. After completing the course the student should be able to

- understand and use the terminology and laws of set theory
- formulate and solve combinatorial problems on combinations and permutations
- use the principle of mathematical induction to prove theorems and formulas
- use the Euclidean algorithm to solve Diophantine equations
- master the foundations of graph theory and use graphs as a tool to model real-life problems

Course content
Set theory, the laws of set theory and Venn diagrams.
Mathematical induction and recursion.
Combinatorics with permutations and combinations.
Number theory and logic.
Graphs: Euler tours, trees and some applications in sports and communication networks.

Teaching and working methods
Teaching is done through lectures and problem sessions

Examination
TEN1	Written examination	4 credits	U, 3, 4, 5

Grades
Four-grade scale, LiU, U, 3, 4, 5

Department
Matematiska institutionen

Director of Studies or equivalent
Jesper Thore'n

Examiner
Armen Asratian

Education components
Preliminary scheduled hours: 42 h
Recommended self-study hours: 65 h

Course literature
Asratian, A., Björn A. och Turesson, B. O.: Kompendium i Diskret matematik.

Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at http://styrdokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva.