Mathematics

Programme course

12 credits

Matematik

TNSL01

Valid from: 2017 Spring semester

Determined by
Board of Studies for Industrial Engineering and Logistics

Date determined
2017-01-25

Main field of study
No Main Field of Study

Course level
First cycle

Advancement level
G1X

Course offered for
- Air Transportation and Logistics, Bachelor's Programme
- Civic Logistics, Bachelor's Programme

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.

Prerequisites
See ruels for admission to the Civic Logistics at Linköpings university.

Intended learning outcomes
The cours aim is to give elementary education in mathematic, where the goal is to give you as a student a stabile ground for university education. You should as a student be familiar with mathematical concepts, conversation and connection in the course, as a platform for other courses on the program. After completion of the course, the student should be able to read and interpret mathematical text and,

- handel simple algebraic expression with real and complex numbers.
- set up and solve equations, linear systems of equations and inequalities.
- studies the elementary functions with derivates, limits to draw conclusions regarding the properties of the functions.
- explain and use calculus rules / definition for power, logarithm, limits, derivative, antiderivative, integrals and complex number.
- use unit circle to defined trigonometric identities, solve trigonometric equation and graphing trigonometric functions.
- use standard techniques to calculate antiderivatives and definite integrals.
- handle differential equations of first and second order.
- use Taylorexpansions to approximate functions.

Course content
Algebraic expressions, calculation rules for real and complex numbers. Definitions and properties of the elementary functions. Geometry and trigonometry. Limits and derivatives. Antiderivatives and integrals. Complex numbers and absolute value. Differential equations of first and second order. Taylors and Maclaurins formal.

Teaching and working methods
Teaching is done in lectures, problem classes and seminars. The examination consists of two written test and hand-in assignments.
The course runs over the entire autumn semester.

Examination

UPG2	Oral and written examination part 2	1 credits	U, G
UPG1	Oral and written examination part 1	1 credits	U, G
TEN2	Written examination, part 2	5 credits	U, 3, 4, 5
TEN1	Written examination, part 1	5 credits	U, 3, 4, 5

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

Department
Institutionen för teknik och naturvetenskap

Director of Studies or equivalent
George Baravdish

Examiner
Vivianne Deniz

Education components
Preliminary scheduled hours: 140 h
Recommended self-study hours: 180 h

Course literature

Additional literature

Books

ITN Norrköping, *Övningsuppgifter del 1*
ITN Norrköping, *Övningsuppgifter del 2*
Månsson, Jonas, Nordbeck, Patrik, (2011) *Endimensionell analys*
ISBN: 9789144056104
Lund : Studentlitteratur, 2011

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.