

SYLLABUS

Linear Algebra, Integral Calculus and Learning 7.5 credits M0058M

Linjär algebra, integralkalkyl och lärande

Course syllabus admitted: Autumn 2021 Sp 1 - Spring 2023 Sp 4

**DECISION DATE
2021-02-17**

Linear Algebra, Ingtegral Calculus and Learning 7.5 credits M0058M

Linjär algebra, integralkalkyl och lärande

First cycle, M0058M

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	G U 3 4 5	Matematik	Mathematics

Entry requirements

In order to meet the general entry requirements for first cycle studies you must have successfully completed upper secondary education and documented skills in English language and Differential calculus and Learning or equivalent.

Selection

The selection is based on 1-165 credits.

Examiner

Peter Wall

Course Aim

After finishing the course, the student should

Knowledge and understanding

- know basic concepts, theory and methods in linear algebra and integral calculus.
- be able to translate subject didactic research in the field into a subject didactic reasoning.

Färdighet och förmåga

- solve relevant mathematical and technical problems related to linear algebra and integral calculus.
- do a didactical analysis of the mathematical field.

Värderingsförmåga och förhållningssätt

- critically assess the relevance of linear algebra and integral calculation in technical areas and link the mathematical field to a context relevant to upper secondary school students.

Contents

Integrals: definition, properties, methods of computation, primitive functions, area and volume, generalized integrals.

Linear algebra: vectors and matrices, linear independence, linear systems of equations, determinants. **Learning:** upper secondary school students learning in linear algebra and integral calculus.

Learning: upper secondary school students learning in linear algebra and integral calculus.

Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.

The course's working methods consist of lectures, lessons, computer exercises and seminars. The student conducts a didactic analysis and writes a short report in which the mathematical content is related to governing documents for upper secondary school. The elements that require compulsory attendance are stated in the course study guide (in the event of absence, the student performs supplementary assignments according to the instructions in the study guide).

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided. The course aims are examined by an individual written exam and compulsory course assignments that must be approved.

Remarks

Cannot be included in the degree together with M0048M or M0030M.

Literature. Valid from Autumn 2021 Sp 1

Adams Robert A, Essex C: Calculus, A Complete Course. Pearson, senaste upplagan.

Lay D: Linear algebra and its applications. Addison-Wesley, senaste upplagan.

P. Jönsson: MATLAB-beräkningar inom teknik och naturvetenskap, Studentlitteratur, senaste upplagan.

Course offered by

Department of Engineering Sciences and Mathematics

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0002	Course assignment	U G#	1.5	Mandatory	A21	
0003	Written exam	G U 3 4 5	6	Mandatory	A21	

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Syllabus established

by Head Faculty Programme Director Niklas Lehto 2021-02-17