

SYLLABUS

Integrals, Vectors and Matrices 7.5 credits M0051M

Integraler, vektorer och matriser

Course syllabus admitted: Autumn 2023 Sp 1 - Present

**DECISION DATE
2022-02-14**

Integrals, Vectors and Matrices 7.5 credits M0051M

Integraler, vektorer och matriser

First cycle, M0051M

Education level
First cycle

Grade scale
G U 3 4 5

Subject
Matematik

Subject group (SCB)
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 the course Basic Mathematics and Derivatives, or equivalent.

Selection

The selection is based on 1-165 credits.

Course Aim

After completing the course, the student will

- have knowledge of vectors and vector arithmetics
- have knowledge of systems of linear equations and matrices.
- have knowledge of methods to find primitive functions, and definite integrals.
- know how to use vectors and matrices in problem solving.
- know how to use integrals to calculate areas and volumes.
- be able to use mathematical software for the problem areas of the course
- be able to validate the plausibility of the results

Contents

Primitive functions. Integrals. Definitions, properties, computational methods, improper integrals. Applications. Vector geometry. Systems of linear equations. Matrices and determinants. Eigenvalues and eigenvectors. Use of computer tools.

Realization

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

Lectures and tutorials where theory and example problems are reviewed, with some degree of personal practice.

Mandatory marking conferences for grading of the course assignments.

The assignments may be marked using other methods.

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 is graded with a written exam, and mandatory assignments. To pass the course, both parts need to be passed. The final grade of the course is set by the grade of the written exam.

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term "unauthorized aids" refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Transition terms

The course replaces M0043M.

Course offered by

Department of Engineering Sciences and Mathematics

Modules

| Code | Description | Grade scale | Cr | Status | From period | Title |
|------|-------------------|-------------|-----|-----------|-------------|-------|
| 0002 | Assignment report | U G# | 1.5 | Mandatory | A19 | |
| 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.

Last revised

by Niklas Lehto, Programme Director 2022-02-14

Syllabus established

by Niklas Lehto 2019-02-15