Syllabus for

Academic year 2009/2010 >

TMV186 - Linear algebra

Syllabus is not yet adopted
Owner: TKDES
7,5 Credits
Grading: TH - Five, Four, Three, Not passed
Education cycle: First-cycle
Major subject: Mathematics
Department: 11 - MATHEMATICAL SCIENCES

Teaching language: Swedish

Credit distribution

Course module	Sp1	Sp2	Sp3	Sp4	Summer course	Examination dates
0107 Examination 7,5 c Grading: TH			7,5 c			Sat 13/03-2010 am V, Thu 14/01-2010 am V, Mon 23/08-2010 am V

In programs
TKDES INDUSTRIAL DESIGN ENGINEERING, Year 1 (compulsory)

Examiner:
Univ lektor Carl-Henrik Fant

Replaces
TMV185 Linear algebra

Course evaluation:
https://document.chalmers.se/doc/1374039900

Go to course homepage

Eligibility:
For single subject courses within Chalmers programmes the same eligibility requirements apply, as to the programme(s) that the course is part of.

Course specific prerequisites
TMV176 or equal (including MATLAB).

Aim
The purpose of the course is to, together with the other math courses in the program, provide a general knowledge in the mathematics required in further studies as well as in the future professional career.

Learning outcomes *(after completion of the course the student should be able to)*
- account for the basic concepts of linear aglebra.

- understand and describe the connections between these concepts.

- use and combine different concepts in problem solving.

- use the software MATLAB in problem solving.

Content
Matrix algebra, matrix inversion and systems of linear equations.
Determinants, the rank of a matrix and systems of linear equations.
Vector spaces, the Euclidean vector space R^n, subspaces, linear independence, basis, dimension, coordinates, change of basis.

Linear transformations: Matrix representation. Applications to rotations, reflections and projections.
Transformations from R^n to R^m . Null space (kernel), column space (range), the rank (dimension) theorem.

The least squares method.
Eigenvalues, eigenvectors and diagonalization.

Organisation

Instruction is given in lectures and classes. More detailed information will be given on the course web page before start of the course.

Literature

Literature will be announced on the course web page before start of the course.

Examination

More detailed information of the examination will be given on the course web page before start of the course.
Examples of assessments are:
-selected exercises are to be presented to the teacher orally or in writing during the course,
-other documentation of how the student's knowledge develops,
-project work, individually or in group,
-written or oral exam during and/or at the end of the course.
-problems/exercises are to be solved with a computer and presented in writing and/or at the computer.