



LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Matematik, linjär algebra Mathematics, Linear Algebra

FMAA55, 4,5 credits, G1 (First Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED F/Pi

Date of Decision: 2023-04-18

General Information

Compulsory for: IBYA1, IBYI1, IBYV1, IDA1, IEA1

Language of instruction: The course will be given in Swedish

Aim

The course aims at giving a basic treatment of linear algebra. Particular emphasis is given to the role which the latter plays in applications in different areas of technology, in order to give the future engineer a good foundation for further studies.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- with confidence be able to solve linear systems of equations and be able to demonstrate an ability to geometrically interpret the solutions of such systems
- be able to represent, handle and compute with basic geometrical objects in three dimensions, such as points, vectors, lines and planes
- be able to show a general knowledge of the matrix concept, and be able to carry out elementary matrix operations and to solve matrix equations.

Competences and skills

For a passing grade the student must

- be able to demonstrate a good capacity for algebraic manipulations.
- in connection with problem solving be able to demonstrate an ability to independently choose and use mathematical methods within linear algebra
- in connection with problem solving be able to demonstrate an ability to integrate

- concepts from different parts of the course
- be able to demonstrate an elementary ability to explain a mathematical argument in a structured and logically clear way.

Contents

Systems of linear equations. Vectors, bases and coordinate systems. Equations for lines and planes in space. Scalar product with applications. Vector product with applications. Matrices. Linear transformations. Determinants.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)

Assessment: Written test.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Admission

The number of participants is limited to: No

The course overlaps following course/s: FMAA21, FMA656, FMA425, FMA420, FMA421, FMAA20, FMAB20

Reading list

- Sparr, G: Linjär algebra. Studentlitteratur, 1997, ISBN: 978-91-44-19752-4. Second edition.
- Övningar i Linjär algebra. Studentlitteratur, 2001, ISBN: 97-891-44-11607-5. Ninth edition.

Contact and other information

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