ML0021 Mathematics for Technical Preparatory Year I 12.0 fup

Matematik för basår I

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for ML0021 valid from Autumn 2015

Grading scale

A, B, C, D, E, FX, F

Education cycle

Pre-university level

Specific prerequisites

The Mathematics of the upper secondary school 2a, 2b, 2c or Mathematics B

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The overall goal of the course is to give new students enough skills and understanding to be able to follow the mathematics courses of the 3- and 5-year engineering programs.

The courses should also contribute to a good introduction to higher education.

The student should be able to formulate, analyse and solve mathematical problems in the area and to explain the mathematical reasoning in writing. The problems can be based on realistic situations and/or include handling of mathematical procedures of standard character.

Course contents

MODULE: TEN1

Vectors; Arithmetical operations. Components of vectors. Coordinates. Vector length

Algebraic expression and algebraic methods; Implication and equivalence. Polynomial. Powers. Square roots. Absolute value. Equations. Factorial polynoms Rational expressions. Linear equation systems. Linear inequalities.

Functions; Linear functions. Direct proportionality. Quadratic functions. Power functions.

Right-angle trigonometry.

Uniformity; Triangle theorems Area and volume scale factors.

MODULE: TEN2

Exponential functions.

Logarithms; Logarithm laws. Natural logarithms.

Derivatives; Change rates. Limits. The definition of the derivative. Derivation rules.

Derivatives and graphs; Extreme points and extreme values. Increasing and decreasing. Maximum and minimum values. Second derivative.

The equation of the circle.

Area theorem. Sine law. Cosine law.

Course literature

Natur o Kultur:

- **Matematik 5000 Kurs 3c basåret**
  Alfredsson, Björk, Brolin m.fl. 978-91-27- 43010-5
- **Formler och tabeller** 978-91-27- 42245 -2

Extrabok som rekommenderas:

Konvergenta

- Matematik 1000 978-91- 973708-5-1

Examination

- TEN2 - Examination, 6.0 fup, grading scale: P, F
- TEN1 - Examination, 6.0 fup, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Other requirements for final grade

TEN1 - Written examination, 6.0 credits, grade P/F

TEN2 - Written examination, 6.0 credits, grade P/F

Final grades are based on the total number of points from both written examinations.

For final grade, it is required that all examination parts are approved

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.