



## Course syllabus

Faculty of Technology  
Department of Mathematics

1MA131 Grundläggande matematik för ingenjörer, 7,5  
högskolepoäng

Basic Mathematics for engineers, 7.5 credits

**Main field of study**

Mathematics

**Subject Group**

Mathematics

**Level of classification**

First Level

**Progression**

G1N

**Date of Ratification**

Approved by Faculty of Technology 2013-12-16

The course syllabus is valid from autumn semester 2014

**Prerequisites**

General entry requirements and Mathematics D or Mathematics 3c (Field-specific entry requirements 8/A8).

## Objectives

The student should be able to:

- solve elementary equations and inequalities involving rational expressions
- describe definitions and relations, and sketch graphs of elementary functions and quadratic forms
- perform computations with the binomial theorem, and outline its proof
- explain and use the induction principle
- perform elementary computations with complex numbers and solve polynomial equations with complex coefficients
- describe definitions and relations for limits and continuity, and perform computations
- describe definitions of and derive relations between central concepts of the course and apply these relations to solve problems

- be able to interpret, communicate and argue using mathematic notions

## Content

Numbers, algebraic expressions, equations and inequalities, elementary functions, sums, sequences, induction, binomial theorem, complex numbers, complex plane, de Moivre's formula, complex quadratic equations, factor theorem, binomial equations, definition of limit, rules for limits, standard limits, continuity and geometric series.

## Type of Instruction

Lectures and seminars. Compulsory assignments may be given during the course.

## Examination

The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).

On request, students may have their credits translated to ECTS-marks. Such a request must be sent to the examiner before the grading process starts.

The student's knowledge is assessed in the form of written examinations, which involve both computation and theory questions. Furthermore, continuous assessment can be used during the course. The principal assessment method for the course is determined at the beginning of the course.

## Course Evaluation

A course evaluation will be carried out and compiled after the course is completed. The compilation will be presented to the current board as well as to the students and filed.

## Required Reading and Additional Study Material

Månsson J., Nordbeck P. *Endimensionell analys*, Studentlitteratur, latest edition. 203 (393) pages

Månsson J., Nordbeck P. *Övningar i endimensionell analys*, Studentlitteratur, latest edition. 88 (207) pages

Ekstig K, Hellström L., Sollervall H. *Matematik Startbok*, Studentlitteratur, latest edition. 150 (172) pages.