

**SYLLABUS**

# **Mathematics IV, supplementary course 7.5 credits M0044M**

**Matematik IV - Överbryggnadskurs i Matematik**

**Course syllabus admitted: Autumn 2017 Sp 1 - Spring 2020 Sp 4**

**DECISION DATE  
2017-02-15**

# Mathematics IV, supplementary course 7.5 credits M0044M

## Matematik IV - Överbryggnadskurs i Matematik

### First cycle, M0044M

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	G U 3 4 5	Matematik	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

## Selection

The selection is based on 1-165 credits.

## Examiner

Ove Edlund

## Course Aim

After completing the course, the student

- should have knowledge of and be familiar with key mathematical concepts, methods and logical structures
- have knowledge about multivariable calculus and linear algebra
- should have developed the capacity for critical analysis, planning and modeling
- use mathematics as an effective tool for further studies in mathematics, science, technology and economics as well as in professional life
- have knowledge in the use of modern CAS systems
- be able to identify the need for further deepening and development of their mathematical skills
- have acquired the mathematical material that is required for further studies at MSc level at Luleå University of Technology

## Contents

Functions of several variables, derivatives, differentials, Taylor polynomials, extreme values, multiple integrals, line integrals, vector analysis and geometric applications. Selected parts from linear algebra. Computer Algebra Systems.

## Realization

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

Teaching consists of lectures, tutorials and laboratory work. Other forms of teaching can occur

## 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.

To pass the course requires an approved written examination.  
The course is given with differentiated grades.  
Compulsory computer exercises which are to be reported and approved.  
Alternative examination forms can occur.

## Transition terms

This course applies to the transition to MSc engineering programs at Luleå University of Technology . However, other transitional rules apply for transition to Master Programme in Mechanical Engineering.

## Literature. Valid from Autumn 2017 Sp 1

Adams-Essex: Calculus—A Complete Course. Edition 8. Pearson.  
ISBN 978-0-321-78107-9.

Lay-Lay-McDonald: Linear Algebra and its Applications. Edition 5. Pearson.  
ISBN 978-1-292-09223-2, alternatively

## Course offered by

Department of Engineering Sciences and Mathematics

## Items/credits

Number	Type	Credits	Grade
0003	Written exam	7.5	G U 3 4 5

## 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 Mats Näsström 2017-02-15

## Syllabus established

by Head of Department Elisabet Kassfeldt 2012-06-21