

**SYLLABUS**

# **Mathematics D 10.5 pre- education credits BX003M**

**Matematik D**

**Course syllabus admitted: Autumn 2012 Sp 1 - Spring 2013 Sp 4**

**DECISION DATE  
2012-04-03**

# Mathematics D 10.5 pre-education credits BX003M

## Matematik D

### Pre-university level, BX003M

<b>Education level</b>	<b>Grade scale</b>	<b>Subject</b>	<b>Subject group (SCB)</b>
Pre-university level	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

## Examiner

Lars Bergström

## Course Aim

To give basic knowledge of the mathematics required to study natural science/technique at university level.

After completed course the student should be able to:

- Utilize the unit circle to define trigonometric concepts , demonstrate trigonometric connections and give complete solutions to simple trigonometric equations and utilize this knowledge at solution of problems
- Draw graphs of trigonometric functions and utilize these functions as models of real periodic development
- Derive and utilize the formulas required to transform simple trigonometric expressions and solve trigonometric equations .
- Calculate sides and angles of an arbitrary triangle .
- Explain rules for finding the derivative and her/himself be able to derive these rules for trigonometric functions, logarithmic functions, composite functions, products and quotes of functions and utilize these rules at solution of problems
- Utilize the second derivative in different applications.
- Explain and utilize the thought behind a method for numeric solution of equations and be able to utilize graphic, numeric or symbol-handling soft-ware.
- Determine primitive functions and utilize such to solve applied problems
- Explain the signification of the concept of integrals and demonstrate the connection between integral and derivative and set up, interpret and utilize integrals in different types of basic applications.
- Describe the thought behind and be able to utilize a method for numerical integration and at solution of problems be able to utilize graphic, numeric or symbol- handling software to calculate integrals
- On her/his own responsibility analyse, accomplish and report, orally and in writing, a somewhat more comprehensive task where knowledge from different ranges of mathematics are used

## Contents

Triangle-theorems

Trigonometric formulas and equations.

Angular dimensions and the concept of radians.

Trigonometric curves.

More about derivatives..

Primitive functions, integrals and application of integrals

## Realization

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

Lessons.

## 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.

Written test. Assignment

Assignment

## Remarks

The course can not be a part of an exam at University of Dalarna.

The course corresponds to MA0006.

## Literature. Valid from Autumn 2012 Sp 1

Björk, Lars-Eric, Brolin, Hans. (2000) Matematik 3000 : matematik tretusen. Kurs C och D, Lärobok. Naturvetenskap och teknik. 1 uppl. Stockholm : Natur och kultur. (348 s). ISBN 91-27-51002-6

Anmärkning/Note: Även med tryckår: 2. tr., 2001 ; 3. tr., 2001 ; 4. [tr.], 2001 ; 5. tr., 2002 ; 6. tr., 2003

## Course offered by

Department of Engineering Sciences and Mathematics

## Items/credits

No items/credits available

## Syllabus established

by Dept TVM Mats Näsström 2012-04-03