Mathematics II for Technicians 7.5 credits B0002M

Matematik II för bergsskoletekniker

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

DECISION DATE
2017-06-16

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Mathematics II for Technicians 7.5 credits B0002M

Matematik II för bergsskoletekniker

First cycle, B0002M

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 and Mathematics I for Technicians B0001M or equivalent.

Selection

The selection is based on 1-165 credits.

Examiner

Ove Edlund

Course Aim

The students should develop their ability to understand and use mathematical concepts and models as tools within production technique applications.

After completion of the course the student is expected to be able to:

- handle and manipulate rational expressions, polynomial and power functions to solve technical problems
- use and interpret exponential functions and graphs that are utilized in e.g. building acoustics, metal cutting processes and other technical applications
- understand and use the derivative for technical applications such as optimization of design, calculating diffusion and reaction velocities or estimating the concentration gradients for diffusion and stiffening in metal production
- use trigonometry for arbitrary triangles in point positioning in geodetic measurements or metrological estimations within manufacturing technology
- use integrals to calculate the work done in thermo dynamical processes
- work with a graphical calculator

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Contents

Trigonometry: uniformity, sine-, cosine and tangent of an angle, arbitrary triangles.

Functions: the symbol $y = f(x)$, quadratic functions, inequalities, exponential- and logarithmic functions, the concept of radians, trigonometric equations.

Derivatives: the rate of change, applications of derivatives, increasing and decreasing functions, the second derivative, extreme value problems, the smallest and greatest value,

differentiation rules.

Integrals: definition, calculation of integrals and areas.

Technical applications

Realization

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

Lectures and exercises.

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 examination.

Remarks

The course cannot be used as part of the Högskole Engineer Degree or BSc Degree.

The course corresponds to MA1012.

Literature. Valid from Autumn 2014 Sp 1

Croft, Anthony., Davison. Robert. (2006) Foundation maths. 5 uppl. New York : Pearson Education. (523 s). ISBN 9780273730767

Course offered by

Department of Engineering Sciences and Mathematics

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Items/credits

Number	Type	Credits	Grade
0001	Written exam	7.5	G U 3 4 5

Last revised

by Mats Näsström 2017-06-16

Syllabus established

by Dept TVM Mats Näsström 2012-04-03

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