SF1612 Mathematics, Basic Course 6.0 credits

Matematik, baskurs 1

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

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

Establishment

Course syllabus for SF1612 valid from Autumn 2008

Grading scale

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

Education cycle

First cycle

Main field of study

Mathematics,Technology

Specific prerequisites

Advanced mathematics (level A-D from a Swedish high school or equivalent).

Language of instruction

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

Intended learning outcomes

After the course the student should be able to

- Simplify expressions by factoring or using laws of exponents and logarithms.
- Use the unit circle to derive trigonometric relations.
- Solve certain rational equations and inequalities using the factor theorem, polynomial division etcetera.
- Solve certain trigonometric equations, root equations and equations involving logarithms or absolute values.
- Interpret and use the summation symbol and the binomial theorem, and compute geometric and arithmetic sums.
- Carry out certain simple proofs, e.g. by induction.
- Use complex numbers, both in rectangular and polar form, including the use of the complex exponential function.
- Explain certain properties of the basic transcendental functions, domain of definition, range, especially the exponential function, the natural logarithm function, and trigonometric functions. Compute inverse functions.
- Present his/her calculations and arguments so that they are easy to follow even for someone who is not already involved in the problem.

In addition, the student should have achieved a study technique that simplifies further mathematical studies

Course contents

- Computations involving real and complex numbers, algebraic expressions, inequalities, equation solving.
- Basic properties of transcendental functions, e.g. the natural logarithm, the exponential function, powers, trigonometric functions, the complex exponential function. Inverse functions.
- Mathematical reasoning, proofs, induction and recursion, the binomial theorem, sums, products.

Course literature

For COPEN1

Persson&Böiers/Analys i en variabel.

LTH/Övningar i analys i en variabel.

For CDATE1:

Kompletteringskompendium i matematik

Samt särtryck ur följande alster:

Persson&Böiers/Analys i en variabel. (Kapitel 0-1) Appendix A och B

LTH/Övningar i analys i en variabel. (Kapitel 0-1) Appendix A och B

Examination

- TEN1 - Examination, 6.0 credits, grading scale: A, B, C, D, E, FX, 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.

Other requirements for final grade

Written examination, possibly in conjunction with other assignments.

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.