Course syllabus

Endimensionell analys B1
Calculus in One Variable B1

FMAB65, 7,5 credits, G1 (First Cycle)

Valid for: 2020/21
Decided by: PLED F/Pi
Date of Decision: 2020-04-01

General Information

Main field: Technology.
Compulsory for: B1, B1, C1, D1, E1, F1, I1, K1, L1, N1, Pi1, V1, W1
Language of instruction: The course will be given in Swedish

Aim

The aim of the course is to give a basic introduction to calculus one variable. Particular emphasis is put on the role that the subject plays in applications in different areas of technology, in order to give the future engineer a good foundation for further studies in mathematics as well as in other subjects. The aim as also to develop the student’s ability to solve problems, to assimilate mathematical text and to communicate mathematics.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

- within the framework of the course with confidence be able to handle elementary functions of one variable, including limits and derivatives of them.
- be able to discuss the logical structure of mathematics, in the way it appears e.g. in plane geometry.
- be able to give a general account of how derivatives may be used to study mathematical models in the applications.
- be able to account for the contents of definitions, theorems and proofs.

Competences and skills
For a passing grade the student must
• be able to demonstrate a good algebraic computational ability
• in the context of problem solving be able to integrate knowledge from different parts of the course.
• be able to show capability to explain mathematical reasoning in a structured and logically clear way.

Contents

Examination details
Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)
Assessment: Written test comprising theory and problem solving. Two computational ability tests. Oral and written assignment. ONLY STUDENTS WHO PASSED THE TESTS OF COMPUTATIONAL ABILITY AND THE ORAL ASSIGNMENT MAY PARTICIPATE IN THE WRITTEN TEST. Four of the exercise sessions are group seminars. By approved participation, including preparations, in at least three of these, the student may get a bonus at the the exam. The bonus remains valid during the academic year. The group seminars are only open for first year students.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Parts
Code: 0120. Name: Written Examination.
Credits: 7.5. Grading scale: TH. Assessment: Written test comprising theory and problem solving. Computational ability tests must be passed before the examination. One assignment (oral and in writing) must be passed before the examination.
Code: 0220. Name: Computational Ability Test 1.
Credits: 0. Grading scale: UG.
Code: 0320. Name: Assignment.
Credits: 0. Grading scale: UG.
Code: 0420. Name: Computational Ability Test 2.
Credits: 0. Grading scale: UG.

Admission
The number of participants is limited to: No
The course overlaps following course/s: FMA410, FMA415, FMA645, FMAA01, FMAA05
Reading list


Contact and other information

Course coordinator: Studierektor Anders Holst, Studierektor@math.lth.se
Course administrator: Studerandeexpeditionen, expedition@math.lth.se
Course homepage: http://www.maths.lth.se/course/endimB1ny/
Further information: Calculus in one variable is taught and examined in two versions, track A (the courses Calculus in One Variable A1-A3) and track B (the courses Calculus in One Variable B1-B2) respectively, depending on the student’s programme. The goals are the same. The present course belongs to track B. A student who has enrolled in this course may not later enrol in courses from track A. Before the written retake exams it will be possible to retake the tests of computational ability and the oral assignment.