SF1686 Calculus in Several Variable 7.5 credits

Flervariabelanalys

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 SF1686 valid from Autumn 2019

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Completed course SF1625 Calculus in One Variable or SF1685 Calculus in One Variable.

Language of instruction

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

Intended learning outcomes

After finishing the course the student is expected to

- Be able to use terminology, results and methods to solve, and present solutions of, problems in calculus in several variables described within the course contents.
- Read and understand mathematical text.

Course contents

Euclidian n-space. Functions of several variables and vector-valued functions, including the following concepts: Graph, level curve, level surface. Limits and continuity, differentiability, partial derivatives, the chain rule, differentials. Tangent planes and linear approximation. Taylor's Formula. Gradient and directional derivative. Jacobian matrix and Jacobian determinant. Invertibility and implicitly defined functions. Coordinate changes.

Extreme-value problems. Multiple integrals. Line integrals and Green's theorem. Flux integrals and the divergence theorem. Stokes' theorem. Applications.

Course literature

Announced no later than 4 weeks before the start of the course on the course web page.

Examination

- TEN1 - Examination, 7.5 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.

The examiner decides, in consultation with KTHs Coordinator of students with disabilities (Funka), about any customized examination for students with documented, lasting disability.

Other requirements for final grade

Written exam, possibly with the possibility of continuous examination.

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.