SF1632 Complementary Course in Differential Equations and Transforms 3.0 credits

Kompletteringskurs i differentialekvationer och transformer

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

Establishment

The official course syllabus is valid from the spring semester 2027 as decided by the Faculty Board: dnr PA-2026-0014. Decision date: 2026-09-28

Grading scale

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

Education cycle

First cycle

Main field of study

Mathematics, Technology

Specific prerequisites

Completed basic course SF1633 Differential Equations or SF1676 Differential Equations with Applications.

Intended learning outcomes

After the course the student should be able to

- use theorems and methods to solve solutions to problems within the parts described by the course content,
- demonstrate av basic understanding of the mathematical concepts within the course content,
- read and comprehend mathematical text and show the ability to explain mathematical reasoning.

For higher grades, the student in addition should be able to:

- demonstrate a deeper understanding of the course content by describing proofs,
- be able to solve more complex problems within the problem areas of the course descibed by the course content.

Course contents

Series solutions to second order linear ordinary differential equations. Fourier series, inner product spaces, orthogonal functions. Sturm-Liouville problem. Fourier transform. Distributions. Partial differential equations. Separation of variables. Applications of ordinary and partial differential equations.

Examination

- TEN1 - Examination, 3.0 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.

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

The examiner decides, in consultation with KTHs Coordinator of students with disabilities (Funka), about any customized examination for students with documented, lasting disability. The examiner may allow another form of examination for re-examination of individual students.

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.