SF1629 Differential Equations and Transforms II 9.0 credits

Differentialekvationer och transformer II

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

Establishment

Course syllabus for SF1629 valid from Autumn 2007

Grading scale

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

Education cycle

First cycle

Main field of study

Mathematics, Technology

Specific prerequisites

Mathematics, introductory courses 5B1106/SF1602+5B1107/SF1603, 5B1109/SF1604.

Language of instruction

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

Intended learning outcomes

To provide students with a basic knowledge of the theory of differential equations and related transforms with applications.

Course contents

First order differential equations. Second order linear equations. The Laplace transform. Systems of differential equations. Qualitative methods for non-linear differential equations. Analysis at critical points. Long term behaviour. Stability. Existence- and uniqueness theorems.

Fourier series, orthogonal systems of functions. Sturm-Liouville problems. The Fourier transform. Discrete transforms. Distributions. Partial differential equations. Separation of variables. Applications to ordinary and partial differential equations.

Course literature

Boyce-Diprima:Elementary Differential Equations and Boundary Value Problems, 8:th ed.

Anders Vretblad: FOURIERANALYSIS and Its Applications.

Examination

- TEN2 - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 4.5 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.

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

Other requirements for final grade

Two written exams (TEN1;4,5 cr, TEN2;4,5 cr).

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.