SF2702 Wavelets 6.0 credits

Wavelets

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

Establishment

Course syllabus for SF2702 valid from Autumn 2007

Grading scale

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

Education cycle

Second cycle

Main field of study

Mathematics

Specific prerequisites

SF1629 Differential equations and transforms II, or equivalent knowledge.

Language of instruction

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

Intended learning outcomes

To give the students the mathematical and practical knowledge so that they will be able to

- use wavelet methods on simple problems in signal processing.
- understand the basic ideas behind some existing applications of wavelets.

Course contents

The Haar system, filterbanks with exact reconstruction, fast implementations, multi-scale analysis and wavelet bases, linear and non-linear programming.

Application of wavelets for data compression and noise reduction of sound and images, detection and classification of signals.

Introduction to relevant real areas of application and the news development in applied harmonic analysis.

Course literature

Jöran Bergh, Fredrik Eksetdt, Martin Lindberg: Wavelets, Studentlitteratur

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.

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

Other requirements for final grade

Project (PRO; 6 hp).

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.