HL2028 Biomedical Signal Processing 6.0 credits

Medicinsk signalbehandling

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 HL2028 valid from Autumn 2012

Grading scale

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

Education cycle

Second cycle

Main field of study

Medical Engineering

Specific prerequisites

Medical IT, Transform methods.

Language of instruction

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

Intended learning outcomes

When passed, the student should be able to:

- Describe the origin, properties and suitable models of important biological signals such as ECG, EEG and EMG.
- Determine and successfully apply suitable algorithms for analysis of biomedical signals. Specifically, the student should be able to implement and apply algorithms for
- parametric and non-parametric estimation of a signal's power spectrum density.
- filtering of signals

Course contents

The course is divided according to the different type of signals (ECG, EEG, etc). For each type of signal, methods for analyzing the signal are discussed. In computer laboratory experiments (mandatory) realistic clinical problems are illustrated.

Course literature

Sörnmo & Laguna, Bioelectrical Signal Processing in Cardiac and Neurological Applications, Elsevier Academic Press, 2005, or similar.☐

Examination

- LAB1 - Lab Work, 2.0 credits, grading scale: P, F
- NÄR1 - Mandatory Attendance, 1.0 credits, grading scale: P, F
- 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.

Other requirements for final grade

TEN1 – Type of examination will be provided when the course starts, 3 hp, Grading scale A-F

LAB1 – laboratory assignments, 2 hp

NÄR1 – mandatory attendance, 1 hp

Final grade is based mainly on grade obtained on exams.

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.