HL2002 Medical Instrumentation and Signal Processing 6.0 credits

Medicinsk mätteknik och signalbehandling

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

Establishment

Course syllabus for HL2002 valid from Autumn 2007

Grading scale

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

Education cycle

Second cycle

Main field of study

Electrical Engineering

Specific prerequisites

Medical engineering, basic course, 7E1101, HL1007, HL2006 or corresponding course.

Language of instruction

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

Intended learning outcomes

The course provides insight in principles, applications and design of medical sensing systems and in the signals originating from such systems. Presentation will be on a general level in parallel with clinical examples of devices.

Course contents

Fields covered by the course are physiological sensing devices, the origins and meaning of biosignals, electrodes for measurements of biosignals, and physiological instrumentation. Methods for measurements of pressure, flow and volume will be discussed in the context of blood and respiratory gases. Signal processing applied to biosignals. Potentials, limitations and sources of errors in various methods.

The material will be presented during a number of lectures. Participants will then apply the material in some homework (of the type calculations), and in 2 laboratory exercises.

Course literature

Medical Physics and Biomedical Engineering, Brown BH et al, Institute of Physics Publishing, 1999.

Examination

- TEN1 - Examinsation, 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

Written examination 6 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.