HL1006 Medical Measurement and Monitoring 7.5 credits

Tillämpad medicinsk mätteknik

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

Establishment

Course syllabus for HL1006 valid from Autumn 2015

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Basic medicine equivalent to the course HX1002 Anatomy, Physiology and Pathology. Furthermore, knowledge equivalent to HF1900 Engineering and Information Skills/HL1200 Engineering Introduction and HE1022 Analogue Technology/HE1027 Electrical Principals is required.

Language of instruction

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

Intended learning outcomes

The aim of the course is to give basic knowledge of different measure- and diagnostic methods within the healthcare. Technical and medical, as well as biological methods are included.

After completing the course, the student should be able to:

- Define how a general measurement system is built and describe the occurence and elimination of interference
- Account for the differences between measurements on a biological system compared with technical systems
- Explain how different medical sensors works
- Describe the basics for physical diagnostics and relate this to medical engineering methods
- Explain the principles within clinical physiology, clinical neurophysiology, clinical microbiology and immunology, clinical chemistry and describe the most commonly used methods of measurement in these areas and when used
- Describe the aim and function of patient monitoring and motivate various medical applications
- Carry out measurements on yourself and other students by using medical devices, as well as interpreting the results of these measurements
- Handle certain medical devices and be able to compare practical advantages and disadvantages

Course contents

The teaching is given in the form of lectures, laboratory sessions, exercises and study visits.

- Medical measuring technique
- Medical sensors and signal processing
- Physical diagnostics
- Clinical microbiology and immunology
- Clinical Chemistry
- Monitoring methods
- Physiological methods of measurement in healthcare

Course literature

Lindén & Öberg (red.), Jacobsons Medicin och teknik, Studentlitteratur 2006
Jacobson, Bertil, Teknik i praktisk sjukvård, Studentlitteratur 2003
Utdelat material

Examination

- RED1 - Account, 7.5 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

Approved examination and passed compulsory components.

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.