



# HL2016 Technology in Surgery, Anaesthesia, and Intensive Care 6.0 credits

Teknik inom kirurgi, anesthesi och intensivvård

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

## Establishment

Course syllabus for HL2016 valid from Spring 2010

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Medical Engineering

## Specific prerequisites

**150 university credits (hp) in engineering or natural sciences including 7,5 credits in Medicin or Medical Engineering and Swedish B and English A.**

## Language of instruction

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

## Intended learning outcomes

The objective of the course is to give the student general knowledge about important technical products that are used in surgery, anesthesia, and intensive care. Such products include anesthetic systems, surgical instruments, lighting and ventilation systems in operating rooms, sterile disposable devices, systems for breathing and circulatory support, patient monitoring systems etc. The student will then enter more deeply into a clinically relevant assignment.

After the course the student should be able to:

- Describe the principles of construction, function, and application of important technical products that are used in surgery, anesthesia, and intensive care.
- Analyse relevant medical and/or technical problems and suggest new technical solutions or improvements.
- Look for deeper knowledge in medical and other suitable databases.
- Present the analysis in the form of a scientifically structured and well-written report.

## Course contents

The education will include lectures, written tests, and an individual assignment.

The lectures will be held by people from the health care sector and from medical engineering research and industry. Examples of topics that may be dealt with are:

- Clinical overview of surgery, anesthesia and intensive care
- Anesthetic systems
- Conventional surgical equipment
- Minimally invasive surgery
- Aseptic and antiseptic measures
- The design of a modern operating room
- Breathing and circulatory support systems
- Patient monitoring systems

In addition to the lectures the student will engage in an individually selected problem within the field of study. Preferably, the student should choose an assignment he/she has become especially interested in during the course. A list of suggested problems will be made available.

## Course literature

Material from lectures and other relevant information will be made available.

## Examination

- INL1 - Assignment, 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.

Written tests on lecture topics and written report of the assignment, 6.0 credits.

## 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.