



# HL2005 Implants and Biomaterials 6.0 credits

## Implantat och biomaterial

---

Course syllabus for HL2005 valid from Autumn 19

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

**Grading scale:** A, B, C, D, E, FX, F

**Education cycle:** Second cycle

**Main field of study:** Electrical Engineering

### Intended learning outcomes

The course participants should after finished course be able to:

- Describe: the terminology of the field; the differences between transplantations; prevailing legislation and rules
- Outline the different types of transplantations, clinical problems, and organ supply.
- Explain what a biomaterial is and describe differences between biomaterials.
- Choose a biomaterial for a given application and motivate the reasons.
- Discuss and analyse different implants: their function; limitations and associated risks; medical background and clinical need
- From basic physiological principles reflect over: the function of implants and biomaterials; procedures for clinical application

### Course main content

- Implantation, Transplantation, Legislation
- Passive/Active Implants, EU Quality Aspects
- Implant Biomaterials
- Orthopaedic Implants
- Cardiovascular Implantats (Passive)
- Active Implants (artificial hearts, pacemaker etc.)
- Implantable Stimulators and Sensors
- Neural Prostheses

### Language of instruction

Language of instruction is specified in the course offering information in the course and programme directory.

### Eligibility

HL2006 Medical engineering, basic course or corresponding course

### Literature

Lecture material

Additional reading: Biomaterials Science, 3rd edition, Buddy Ratner, Allan Hoffman, Frederick Schoen, Jack Lemons.  
ISBN: 9780123746269

## Examination

- RED1 - Presentation of Individual Work, 1.0 credits, grading scale: P, F
- TENA - Examination, 5.0 credits, grading scale: A, B, C, D, E, FX, F

## Requirements for final grade

Written exam

Presentation of individual work