



# HL206X Degree Project in Medical Engineering, Second Cycle

## 15.0 credits

Examensarbete inom medicinsk teknik, avancerad nivå

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 HL206X valid from Spring 2016

### Grading scale

P, F

### Education cycle

Second cycle

### Main field of study

Medical Engineering

### Specific prerequisites

Number credits (completely completed courses): According to decision in the Education Committee

All courses that are required for issuing the Degree of Bachelor and at least 30 credits of courses for second-cycle studies should be fully completed.

## Language of instruction

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

## Intended learning outcomes

The purpose of the degree project is that the student shall apply and deepen his or her knowledge, understanding, abilities, and approaches within the context of the education. The degree project shall be carried out towards the conclusion of the education and imply a specialised study and synthesis of earlier acquired knowledge. In the degree project in an engineering programme is emphasised both the technical/scientific content and method knowledge.

After completed degree project, the student should show such proficiency that is required to work independently as a Master of Science in Engineering/Master of Science, according to the national qualitative targets for the Degree of Master of Science in Engineering and Degree of Master of Science in the Higher Education Ordinance. These include:

- considerably advanced knowledge within the main field of study/the specialisation for the education, including advanced insight into current research and development work,
- specialised methodological knowledge within the main field of study/the specialisation for the education,
- ability to participate in research and development work and so contribute to the formation of knowledge
- ability to holistically identify, formulate, analyse, assess and deal with complex phenomena, issues and situations even with restricted information,
- ability to plan and with adequate methods undertake advanced tasks within predetermined time frames as well as the ability to evaluate this work
- ability to create, analyse and critically evaluate different technical/architectural solutions,
- ability to critically and systematically integrate knowledge and ability to identify the need of additional knowledge
- ability to in Swedish or English in speech and writing clearly report and discuss his or her conclusions and the knowledge and arguments on which they are based
- ability to within the frames of the degree project identify the role of the scholarship and the engineer in the society
- ability to within the frame of the specific degree project be able to identify which issues that need to be answered in order to observe relevant dimensions of sustainable development, and

- ability to within the frames of the degree project assess and show awareness of ethical aspects on research and development work with respect to methods, working method and results of the degree project.

## Course contents

### Learning activities

Before the degree project course starts, the student shall identify an appropriate degree project task and formulate a project proposal that can be presented to the examiner for approval. The assignment should be chosen, so that it implies a natural progression of the knowledge and skills that have been acquired within the education and in a possible specialisation within the education.

The student must write an individual plan for the degree project in which the problem description/assignment and the preconditions for the implementation of the work are specified.

The student carries out an individual independent project where knowledge and methods, from the education, are applied.

The student plans and carries out an oral presentation and defence of his or her degree project.

The student carries out an oral and written review of another degree project on the same level.

The student writes and presents a written degree project report, where the student clearly accounts for and discusses own conclusions in the degree project and the knowledge and the arguments that underpin them.

## Disposition

The student shall prepare a brief written project proposal describing the work. This description shall be enclosed with the registration forms. The description shall contain background, purpose, objective and method.

The examiner verifies that the students satisfy the general and specific prerequisites for the degree project and that the proposed degree project will satisfy expected learning outcomes for a degree project. The examiner verifies that the degree project falls within the degree programme's subject area and that the issues studied show appropriate educational progress.

The student writes a detailed individual plan for the degree project and delivers it to the examiner for approval.

The student carries out a pre-study, an investigation of choices of methods, as well as a literature study, which are delivered to the supervisor at KTH for approval.

The student shall continuously, during the degree project, document the work in writing and work on the preliminary version of the written report.

For opposition, the student is assigned another student's degree project report, who is working on a second-cycle degree project, to publicly discuss his or her report. The student shall carry out an oral and written review of the other student's project presentation of his or her degree. The opposition is assessed by the examiner of the other student.

The student shall carry out an oral presentation and defence of his or her own report.

After presentation, the student shall deliver a final report to the examiner.

The examiner should get support for grading from at least one other teacher in the field at KTH (reviewer for the degree project)

The directions for public access at KTH, apply for the implementation of the degree project and for publication of the report. The degree project report should be published electronically in DiVA, according to the rules that apply to electronic publication of degree projects at KTH.

## Examination

- XUPP - Examination Question, 15.0 credits, grading scale: P, 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

- Individual plan for degree project
- Oral presentation
- Written and oral opposition of another student's degree project on second-cycle level
- Written report with summary/abstract in both Swedish and English

Time limit: Requirements according to KTH's regulatory framework for degree projects, and all examination parts as above should be approved within a year from the start of the degree project. Otherwise, the degree project will be ended with a failed grade, unless special circumstances apply.

## 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.