Project - Biomedical Engineering

Programme course

16 credits
Projekt i medicinsk teknik
TBMT41
Valid from: 2020 Spring semester

Determined by
Board of Studies for Electrical Engineering,
Physics and Mathematics

Date determined
2019-09-23
Main field of study

Biomedical Engineering

Course level

First cycle

Advancement level

G2X

Course offered for

- Biomedical Engineering, M Sc in Engineering

Entry requirements

For admission to the course, see tab Common rules, headline Commencing a degree project.

Basic knowledge in biomedical engineering, mathematics, physics, electronics, computer science and control engineering. The courses Anatomy and Physiology, Engineering project, Basic knowledge in programming - abstraction and modelling must be completed.

For students admitted 2018 and forward:

The project work requires basic knowledge in physics, mathematics, electronics, computer science, signals and systems and the project model LIPS. In addition, domain knowledge in biomedical engineering including deepend knowledge within some area. The courses Anatomy and Physiology, Engineering project, Introduction to Computer Programming, and Biomedical Engineering must be completed.

Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

Intended learning outcomes

After the project work the student in the main subject should be able to

- identify the needs of engineering solutions in medicine
- apply methodological knowledge, models and subject-specific knowledge in
biomedical engineering

- use and synthesize knowledge from previous courses and to seek information outside the area of biomedical engineering which can be applied to new areas
- make engineering judgments with regard to the work of relevant scientific, social and ethical aspects
- show the ability to plan, implement and report a thesis work
- implement a project charter to a specification
- plan, document and execute a project with efficient use of material and human resources
- professionally present results orally and in writing within specified time and project frameworks
- critically examine and discuss the writing and orally presented work in the candidate's work
- reflect on a project work and suggest improvements
- actively contribute to well organized project teams
- describe and explain the ethical challenges related to the engineering profession and to technological development.
- apply basic normative ethical theories, principles and concepts to concrete cases and situations.

Course content

Projects: The project may cover areas such as medicine, material science, construction theory, physics, optics, electronics, signals, systems and models etc. The customer initiate the projects. The project group follows the project model CDIO. Independent thesis work established in parallel to the project as a resource.

Teaching and working methods

The course consists of lectures, seminars, project work, written and oral reporting. The project work is done in groups of 5-6 students. The project group will have a supervisor during the project and together with the domain experts in the field act as support. Each group is assigned to a specific project task and a teacher acting as a customer. The customer presents a specification of the project task to the project group. From this specification the group will make a project plan and perform a project work according to the project model LIPS. The work is well documented in a written report and presented orally to the customer. At the end of the course the work is also presented for the other students at a project conference. An independent thesis work is implemented in parallel with the project and this is provided to the project as a project resource.

The course runs the entire spring semester.

Examination
PRA1  Project assignment  U, G  11 credits
UPG1  Written Report  U, G  2 credits
UPG2  Ethics  U, G  1.5 credits
UPG3  Presentation and Opposition  U, G  1.5 credits

Grades are given as 'Fail' or 'Pass'.

Grades

Two grade scale, older version, U, G

Other information

Supplementary courses

Biomedical Engineering - Project Course

About teaching and examination language

The teaching language is presented in the Overview tab for each course. The examination language relates to the teaching language as follows:

- If teaching language is Swedish, the course as a whole or in large parts, is taught in Swedish. Please note that although teaching language is Swedish, parts of the course could be given in English. Examination language is Swedish.
- If teaching language is Swedish/English, the course as a whole will be taught in English if students without prior knowledge of the Swedish language participate. Examination language is Swedish or English (depending on teaching language).
- If teaching language is English, the course as a whole is taught in English. Examination language is English.

Other

The course is conducted in a manner where both men's and women's experience and knowledge are made visible and developed.

The planning and implementation of a course should correspond to the course syllabus. The course evaluation should therefore be conducted with the course syllabus as a starting point.

Department

Institutionen för medicinsk teknik
Director of Studies or equivalent

Marcus Larsson

Examiner

Göran Salerud

Course website and other links

https://www.imt.liu.se/edu/courses/TBMT41/

Education components

Preliminary scheduled hours: 128 h
Recommended self-study hours: 299 h

Course literature

Books

ISBN: 9789147089826