eHealth: Aims and Applications

Programme course

6 credits
E-hälsa: visioner och verktyg
TBMI04
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

- Computer Science and Engineering, M Sc in Engineering
- Information Technology, M Sc in Engineering
- Biomedical Engineering, M Sc in Engineering
- Engineering Biology, M Sc in Engineering
- Computer Science and Software Engineering, M Sc in Engineering

Entry requirements

The course is the first in a serie of three courses and it is recommended that the student takes all courses.

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.

Prerequisites

Three years of university studies with an engineering major. Basic knowledge in anatomy and physiology.

Intended learning outcomes

The overall purpose of the course is to analyse the concept of eHealth based on its interdisciplinary nature. The goal is for students to be able to integrate knowledge from the different parts of the course and critically appraise existing eHealth applications. Through joint teaching between faculties, the course also creates a foundation for
interprofessional learning.
After completing the course, students are expected to be able to

- describe the healthcare system with respect to work procedures, structure, management, and development over time
- explain the concept of eHealth from different points of view
- explain how the individual, organisation, and society can contribute to the development of eHealth
- describe how eHealth can influence health together with quality, attitudes, and work procedures within health and social care
- reflect upon their role in an interdisciplinary work group.

Course content

- The concept of health and factors influencing health for individuals, groups, and society
- Healthcare actors: management and organisation, obligations and responsibilities, processes and interaction, development over time
- Primary aims, benefits, costs, visions, and driving forces of eHealth
- Perspectives on eHealth: definitions and extensions, technological possibilities and limitations, infrastructure and applications, visions and challenges
- eHealth state of the art: electronic health interventions, applications, and enabling technologies such as image analysis, robotics, machine learning, and sensor systems
- Technological constraints for eHealth, their capacity and limitations
- Standardisation for interoperability, national service platforms and contracts
- Implementation and change in work procedures, professions, and leadership
- Ethical and legal aspects of medical information processing
- Human-technology interaction, end-user participation in technology and product development and service design, accessibility and involvement from an intersectional perspective
- Measuring quality, evidence-based eHealth, knowledge sources and resources

Teaching and working methods

The course is designed from a student-centered and problem-based perspective on learning where participants take their own responsibility for their learning through an active and processing approach to learning tasks. The role of the teacher is to support students in this process.

The teaching and working methods – lectures, project work, seminars, and tutorial groups – challenge students to independently formulate questions for learning, seek knowledge, and in dialogue with others appraise and evaluate the knowledge acquired. Students work together on reality-based situations to develop their own learning, contribute to the fellow students’ learning, and to practice cooperation. Oral presentation
of group work is included in the report module.

The course is jointly taught by the Faculty of Medicine and Health Sciences and the Faculty of Science and Engineering. Interprofessional learning, that is, different professions learning together with, about, and from each other, is an important aspect of the course.

**Examination**

- UPG1  Written group report and individual reflection report  U, G  4 credits
- BAS1  Tutorial groups and seminars  U, G  2 credits

**Grades**

Two grade scale, older version, U, G

**Department**

Institutionen för medicinsk teknik

**Director of Studies or equivalent**

Marcus Larsson

**Examiner**

Håkan Örman

**Education components**

Preliminär schemalagd tid: 48 h
Rekommenderad självstudietid: 112 h