UNIVERSITY OF GOTHENBURG

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DIT007 Human-Robot Interaction Design, 7.5 credits

Människa-Robot Interaktion Design, 7,5 högskolepoäng

Second Cycle

Confirmation

This course syllabus was confirmed by Department of Computer Science and Engineering on 2021-12-06 to be valid from 2023-01-16, spring semester of 2023.

Field of education: Design 70% and Technology 30%
Department: Department of Computer Science and Engineering

Position in the educational system

The course is a single-subject course at Gothenburg University

Main field of studies	*Specialization*
Computer Science-Interaction Design	A1N, Second cycle, has only first-cycle course/s as entry requirements

Entry requirements

To be eligible for the course the student must have a Bachelor degree of 180 credits. Additionally, a course in Human - computer interaction, 7.5 credits, is required.

Applicants must prove knowledge of English: English 6/English B or the equivalent level of an internationally recognized test, for example TOEFL, IELTS.

Learning outcomes

On successful completion of the course the student will be able to:

Knowledge and understanding

- Define what a robot is and its interaction modalities.
- Describe stages of the design process for human-robot interaction.
- Describe methods of designing human-robot interactions.
- Describe evaluation methods used in human-robot interaction.
- Describe principles of experience design that can be integrated in human-robot interaction.
- Describe ethical considerations when designing robot interactions in our society.

Competence and skills

- Identify and collate user requirements to design human-robot interaction.
- Identify suitable human-robot interaction modalities for the context of use.
- Design robot interactions with user experience principles in mind.
- Construct a robotic low-fidelity prototype using a human-centered approach.
- Carry out user evaluations to inform the design process and make critical design considerations.

Judgement and approach

- Decide on human-robot interaction design decisions based on the users' needs.
- Make informed evaluations and analyses of human-robot interaction design.
- Derive critical and ethical implications for how human-robot interaction that can impact our society.

Course content

The research and development of robots range from domestic robots, autonomous robotic agents, virtual agents, and industrial robots. Human-Robot Interaction (HRI) is a discipline that is concerned with how we design, develop, and evaluate robotic agents with the user in the loop. This course introduces the HRI design practices, evaluation methods and approaches. In particular, the course will apply human-centered approaches to design for the (1) abilities to consider in a robot, the (2) interaction modalities a robot should have, and (3) the form and appearance of a robot. The course will also give an understanding of the impact robots can have on our society, and the importance of the ethical and critical considerations when designing them.

Sub-courses

1. **Report** *(Rapport),* 4 credits
   Grading scale: Pass with distinction (5), Pass with credit (4), Pass (3) and Fail (U)
2. **Assignments** *(Inlämningsuppgifter),* 3.5 credits
   Grading scale: Pass (G) and Fail (U)

Form of teaching
The course is based on lectures, exercises, project, and a report. Some of the exercises and the project are conducted in groups.

Language of instruction: English

Assessment

The examination consists of two modules, namely:

- Assignments, 3 credits (pass / fail)
- Report, 4 credits (Fail, 3,4,5)

A student who has taken two exams in a course or part of a course without obtaining a pass grade is entitled to the nomination of another examiner. The student needs to contact the department for a new examiner, preferably in writing, and this should be approved by the department unless there are special reasons to the contrary (Chapter 6 Section 22 of the Higher Education Ordinance).

If a student has received a recommendation from the University of Gothenburg for special educational support, where it is compatible with the learning outcomes of the course and provided that no unreasonable resources are required, the examiner may decide to allow the student to sit an adjusted exam or alternative form of assessment.

In the event that a course has ceased or undergone major changes, students are to be guaranteed at least three examination sessions (including the ordinary examination session) over a period of at least one year, but no more than two years, after the course has ceased/been changed. The same applies to placements and professional placements (VFU), although this is restricted to just one additional examination session.

Grades
The grading scale comprises: Pass with distinction (5), Pass with credit (4), Pass (3) and Fail (U).
To pass the course, students must receive a passing grade in both modules. The grade for the entire course will be determined by the report.

Course evaluation

The course is evaluated through meetings both during and after the course between teachers and student representatives. Further, an anonymous questionnaire is used to ensure written information. The outcome of the evaluations serves to improve the course by indication which parts could be added, improved, changed or removed.

Additional information

The course is a joint course together with Chalmers.

Course literature to be announced the latest 8 weeks prior to the start of the course.