



## Course syllabus

Faculty of Technology

Department of Computer Science and Media Technology

4ME303 Fysiska och påtagliga användargränssnitt, 7,5  
högskolepoäng

Tangible User Interfaces, 7.5 credits

**Main field of study**

Media Technology

**Subject Group**

Media Production

**Level of classification**

Second Level

**Progression**

A1N

**Date of Ratification**

Approved by Faculty of Technology 2014-10-03

The course syllabus is valid from autumn semester 2015

**Prerequisites**

22.5 Credits at G2F level in Media Technology or the equivalent.

### Objectives

Upon the completion, the student should be able to:

- discuss relevant conceptual frameworks for design of ubiquitous and tangible user interfaces using physical computing
- understand and explain the design space and the possible specificities of these new types of user interfaces
- understand the challenges of user-centered design for ubiquitous and tangible user interfaces and physical computing
- develop prototypes of these new user interfaces using physical computing
- plan appropriate user studies taking into account the design cycle.

## Content

Physical spaces and everyday objects are being embedded with sensing, networking and computational capabilities that alter the way people work, interact and play in everyday scenarios. The aim of this course is to provide students with knowledge and understanding of the conceptual frameworks and methodologies used for development of ubiquitous and tangible user interfaces.

The course consists of:

- Presentation and discussion of scientific papers covering relevant conceptual frameworks.
- Analysis and discussion of different tangible user interfaces.
- Practical exploration of different user-centered methodologies.
- Hands-on work with high-level prototyping platforms for physical computing.
- Structuring and writing of reports concerning the planning and conducting of appropriate user studies and translation of the results into design alternatives.

## Type of Instruction

Lectures, seminars and workshops.

## Examination

The course is assessed with the grades A, B, C, D, E, Fx or F.

The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student's performance is assessed as fail (i.e. received the grade F).

Assessment in this course will be comprised of: written and/or oral examinations, assignments as well as mandatory seminar work. At the beginning of the course it will be decided on what types of assessment used.

Students who do not pass the regular examination are given the opportunity to do a reexamination shortly after the regular exam.

## Course Evaluation

A course evaluation will be carried out at the end of the course in accordance with the guidelines of the University. The result of the course evaluation will be filed at the department.

## Credit Overlap

The course cannot be included in a degree along with the following course/courses of which the content fully, or partly, corresponds to the content of this course: 4ME103 Tangible User Interfaces, 7.5 credits

## Other

Grade criteria for the A–F scale are communicated to the student through a special document. The student is to be informed about the grade criteria for the course by the start of the course at the latest.

## Required Reading and Additional Study Material

### Required Reading

Kuniavsky, M. (2010). *Smart Things: Ubiquitous Computing User Experience Design*. Morgan Kaufmann. Burlington (MA), USA. Latest Edition. 319(319) pages.

Greenfield, A. (2006). *Everyware: The Dawning Age of Ubiquitous Computing*. New Riders Publishing. Berkeley (CA), USA. Latest Edition. 272(272) pages.

Krumm, J. (2010). *Ubiquitous Computing Fundamentals*. Taylor and Francis Group. Boca Raton (FL), USA. Latest Edition. 410(410) pages.

DFM, *Distributed materials*, 100 pages

**Additional reading**

Lazar, J., Feng, J. H., and Hochheiser H. (2010) *Research Methods in Human Computer Interaction*. John Wiley & Sons Ltd, West Sussex, UK, Latest Edition. 419 (419) pages.

Clark, A. (2003). *Natural-Born Cyborgs: Minds, Technologies, and the Future of Human Intelligence*. Oxford University Press Inc, Madison Avenue (NY), USA. Latest Edition. 240(240) pages.

Dourish, P. (2001). *Where the Action Is: The Foundation of Embodied Interaction*. MIT Press, Cambridge (MA), USA. Latest Edition. 245(245) pages.