



DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DIT075 Mobile Computing: Design and Implementation, 7.5 credits

Mobila Datorer: Design och Implementering, 7,5 högskolepoäng

Second Cycle

Confirmation

This course syllabus was confirmed by Department of Computer Science and Engineering on 2020-11-04 to be valid from 2021-08-30, autumn semester of 2021.

Field of education: Science 100%

Department: Department of Computer Science and Engineering

Position in the educational system

The course is offered as a single subject course.

The course can be part of the following programmes: 1) Computer Science, Master's Programme (N2COS) and 2) Computer Science, Bachelor's Programme (N1COS)

Main field of studies

Interaction Design

Computer Science-Interaction Design

Specialization

A1N, Second cycle, has only first-cycle course/s as entry requirements

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Entry requirements

To be eligible for the course the student must have:

- A bachelor's degree of 180 credits
- Object-oriented programming (7,5 credits) or equivalent -

At least one of the following or equivalent (7,5 credits):

- TIA100 Human-Centred Design
- TIA104 Interaction Design Methodology
- TIA106 Graphical Interfaces

- TIA243 Designing User Experiences
- TIG095 Human-Computer Interaction

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

After completion of the course the student should be able to:

Knowledge and understanding

- describe how mobile computing is defined and distinguished from other kinds of computing applications.
- describe what competences and resources are necessary for creating and utilizing mobile applications at different scales, for different purposes (e.g. startup, enterprise, agency, freelance, artistic, altruistic, and research projects).
- interpret and explain relevant technological and contextual trends in commercial value creation and academic research.
- describe the latest technological research on mobile computing, and explain why research and commercial applications may diverge.
- describe the distinction between different design methods and tools (e.g. research methods, prototyping tools and approaches) that are appropriate for mobile computing.
- describe humanistic and societal issues (e.g. health, economics, politics) that are relevant to mobile computing.
- describe the landscape of mobile computing research, building on and properly citing relevant resources.

Competence and skills

- develop functional software which runs on a mobile computing platform.
- select and execute appropriate design tactics (e.g. graphic design, typography, 3D modeling, photography, motion graphics) at an appropriate level of fidelity and excellence, to create mobile computing user interfaces.
- select and execute appropriate design tactics (e.g. graphic design, typography, 3D modeling, photography, motion graphics) at appropriate proportions and levels of excellence, to document and present mobile computing artifacts
- execute and document a complete design project which culminates in a mobile computing artifact

Judgement and approach

- execute and critique design research approaches that are appropriate for mobile computing, including ethnographic methods.

- critique the reasoning (strategy) and aesthetics (tactics) of mobile computing projects constructively. • find, utilize, and properly acknowledge non-academic technical and tactical building blocks for mobile computing designs.
- interpret, constructively critique, and contribute to discussions on mobile computing in the public sphere.
- make and justify strategic design decisions to create relevant mobile computing artifacts.

Course content

We define "mobile computing" in two ways:

- Portable digital devices. Examples: smartphones, tablets, smartwatches and other wearables, RFID cards, and IoT applications...
- Applications where the user is mobile. Examples: commuting, tourism, driving, biking, sports, walking, exploring, navigating...

This course introduces concepts, methods, and technologies relevant to design and implementation of mobile computing applications. A broad range of topics is covered, from conventional smartphones and tablets, to emerging technologies.

Sub-courses

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

Form of teaching

The course consists of the following kinds of activities:

- Studies (e.g. lectures, readings)
- Exercises (directly related to the Studies, carried out as individuals or groups)
- Implementation (design and/or software development exercises)
- Project (carried out as groups)

Language of instruction: English

Assessment

The course consists of two modules:

4 credits (fail, 3, 4, 5) – Written and Presentation Exercises Several Written and Presentation Exercises are scheduled throughout the learning period. These are mostly done individually.

3,5 credits (fail, 3, 4, 5) – Project Work Project Work involves deliverables scheduled throughout the learning period, a final document and/or presentation (which weighted more than the preceding deliverables), and turning in project code. The project is done as a group work.

If a student, who has failed the same examined element on two occasions, wishes to change examiner before the next examination session, such a request is to be submitted to the department in writing and granted unless there are special reasons to the contrary (Chapter 6, Section 22 of Higher Education Ordinance).

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, though at most two years after the course has ceased/been changed. The same applies to work experience and 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, all mandatory components must be passed. To earn a higher grade than 3, a higher weighted average from the grades of the components is required.

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.

The course replaces the course TIA110, 7.5 credits. The course cannot be included in a degree which contains TIA110. Neither can the course be included in a degree which is based on another degree in which the course TIA110 is included.