INSTITUTIONEN FÖR DATAVETENSKAP

Mattias Arvola
Examinator

Examination TDDE36 2025

The course is assessed through a practical group work and an individual assignment with several sub-assignments. Attendance is mandatory for two presentations and one workshop within the group work.

- Practical group work: Pass (G) or fail (U). 6 credits.
- Individual assignments: Grade 3, 4 or 5. 6 credits.

Information on how the activities in the examination modules are to be carried out is given during lectures and in the course literature. The reading of the course literature must be done continuously and begin on the first day of the course.

Practical group work

The focus of the group work is to design interactive systems for sustainable development. You can find deadlines in the schedule. The grades (pass/fail) are based on the group's work, but the examination is individual. This means that individual students can receive a different grade than the rest of the group if there are reasons for it. Individual supplementary examination assignments may also be assigned.

Goal

To design an interactive system that is based on one or more of the [UN Sustainable Development Goals](#) (Sustainable Development Goal, SDG) and that provides a platform for students to contribute to achieving these goals.

Target audience

Design for other students. However, you may not use students from your own degree program as participants in user study and final prototype testing.

Design challenges

Discuss in the group which of the following challenges you think are important and with which you feel a personal relationship. Discuss what the personal relationship is, and then choose one of the challenges to take on in the group. Don't just choose what you think is easiest.

1. Design an interactive system that encourages students to reduce their carbon footprint – SDG 13: Climate action.
2. Design an interactive system that helps students learn about sustainable

agriculture and food systems – SDG 2: Zero Hunger and SDG 12: Responsible Consumption and Production.

3. Design an interactive system that connects students to volunteer work or associations that support environmental sustainability – SDG 13: Climate Action and SDG 15: Ecosystems and Biodiversity.

4. Design an interactive system that connects students with different skills and abilities to support each other's academic success – SDG 4: Quality education.

5. Design an interactive system that introduces students to programming and computer science concepts – SDG 4: Quality education and SDG 9: Sustainable industry, innovations and infrastructure.

6. Design an interactive system that connects students with farmers and allows them to buy fresh, locally grown produce – SDG 2: Zero Hunger and SDG 12: Responsible Consumption and Production.

7. Design an interactive system that helps students reduce energy consumption for themselves and others – SDG 7: Sustainable energy for all.

8. Design an interactive system that educates students about the importance of biodiversity conservation – SDG 14: Oceans and Marine Resources and SDG 15: Ecosystems and Biodiversity.

9. Design an interactive system that helps students repair things that are broken. – SDG 12: Responsible consumption and production.

10. Design an interactive system that helps students understand the impact of their clothing choices on the environment and provides resources for sustainable fashion options – SDG 12: Sustainable Consumption and Production.

11. Design an interactive system that raises awareness of the challenges faced by refugees and connects students to organizations that offer support – SDG 10: Reduced Inequalities and SDG 16: Peaceful and Inclusive Societies.

12. Design an interactive system that helps students find and participate in community projects or associations that address social and environmental challenges – SDG 3: Good health and well-being, SDG 4: Quality education, and SDG 17: Implementation and global partnership.

You should focus on solutions that are based on different types of screen-based interactive systems, but along the way you can also explore solutions that are not screen-based. Examples of screen-based interactive systems:

- *Websites*: Interactive web pages where users navigate and interact with content through buttons, links, forms, and other interactive elements.
- *Mobile apps*: Interactive applications that are specifically designed for mobile devices. These can include features such as touchscreen, location monitoring, and push notifications.
- *Desktop apps*: Interactive applications for PCs and laptops where you interact using a mouse, touchpad, and keyboard. Here you have a large screen, and the user interface is characterized by windows, icons, menus and pointers (WIMP).
- *Interactive kiosks:* Publicly available touchscreen displays that provide

information, services, or entertainment in various environments, such as
museums, airports, and retail stores.

Project objectives

- To understand how the challenge relates to one's own life's situation.
- To investigate and understand the target group's needs, motivations and
  behaviors in relation to the challenge.
- To explore several potential design concepts and alternative solutions before
  deciding what to move forward with.
- To create a user-centric design solution that effectively addresses the design
  challenge and contributes to the associated SDG by engaging the target
  audience in contributing to its achievement.
- Prototyping the interactive system and testing it to ensure that it meets the
  needs and expectations of the target audience.

Deliverables

Final written presentations of the group work are uploaded to the Collaborative
Workspace at Lisam. Individual assignments are uploaded via Submissions on
Lisam.

Group presentations as well as written individual submissions should after a
brief introduction **describe the method** (i.e. procedure, participants, materials
and tools) and **describe the results** (i.e. what happened and what came out of
implementing the method). In the individual assignments, the method description
and, where appropriate, also the results must be linked to the course literature with
the help of concrete references given in Harvard or APA format. These references
should **show that you have read and understood the course literature**.

The individual tasks are described in more detail later in this document. The
group assignment has several oral presentations, and two written submissions at
the end (design project presentation and reflection document).

Each phase must be planned and executed **in accordance with the course
literature and lectures**. Start each phase by discussing how the work has worked
in relation to agreements in your *group contract*. Agree on changes. Start with
your Gantt chart and use the list below

- Concept phase (weeks 3-9)
    - Introduction and planning (week 3)
        - Choose challenge
        - Set up a group contract
    - Qualitative user research and needs analysis (weeks 4−7):
        - Individual task 1:
            - Interviews with 1−2 participants representative of
              the target group
            - Thematic analysis of 1−2 interviews
        - Group assignment part 1:
            - Personas and problem scenarios

- Design goals in the form of impact/effect goals and UX goals
    - o Concept design (weeks 8–9):
        - ▪ Individual task 2:
            - Concept generation and sketching
        - ▪ Group assignment part 2:
            - Evaluation matrix (Pugh matrix)
            - Concept proposal and presentation
- Processing phase (weeks 10, 13-15)
    - o Individual assignment 3:
        - ▪ Sketching of user interfaces
    - o Group assignment part 3:
        - ▪ Requirement specification based on context scenarios
        - ▪ Paper prototype covering at least three significant user tasks
        - ▪ Qualitative formative usability testing with another group from the course
- The Detail Phase (Weeks 16 – 19)
    - o Group assignment part 4:
        - ▪ Interactive computer prototype in [Material Design](#) system covering at least three significant user data
        - ▪ Quantitative summative usability testing with 5–10 representative users and analysis through descriptive statistics
- Presentation and reflection phase (weeks 20–21)
    - o Group assignment part 5:
        - ▪ Oral presentation of the final design with changes after the test in four slides:
            - Slide 1: Design challenge and concept.
            - Slide 2: Screen recording of the prototype.
            - Slide 3: Evaluation results.
            - Slide 4: Lessons learned.
        - ▪ Written presentation of design projects
    - o Group assignment part 6:
        - ▪ Reflections on the work in a broader context (written document):
            - Sustainability in interaction design and UX
            - Gender equality and equity in Interaction Design and UX
            - Business aspects in interaction design and UX
    - o Individual task 4:
        - ▪ Presentation and reflection on research methods

There are three mandatory sessions (you can find the dates in the timetable):
- Presentation of the concept design phase
- Paper prototype testing workshop

- Final presentation of your four slides that you will show on a large screen in TP42, where you will also walk around and look at and discuss other people's work.

Individual tasks

Each of the three individual tasks is further specified below.
1. Interviews and analysis.
2. Sketching of user interfaces.
3. Reflectionson methods.

Write your name and LiU-ID on each page. Write in Swedish or English. Submit your assignments in PDF format on Lisam and use the following file naming convention: `liuid-tdde36-2025.pdf` (for example `matar63-tdde36-2025.pdf`).

All three assignments are mandatory to do and you must have 5 points on each of them to get a grade of 3. The maximum number of points is 10 on each task, making a total of 30. A guideline is to keep each submission under five pages, not including attached sketches and transcripts.

1. Interviews and analysis

Deadline: 2025-02-07, 17:45.

Preparation: Read up on techniques for data collection (especially interviews) and processing and analysis of qualitative data (especially thematic analysis) in Säfsten and Gustavsson (2023). Remember touseexplicit references in your submission to how Säfsten and Gustavsson with Harvard-style page numbers describing how to conduct interviews (especially semi-structured) and qualitative data analysis (especially thematic analysis) and how you actually did it. Do 1-2 interviews, butyou get a 3 pointdeduction if you have only done one interview.
1. Plan the interviews and writehow you thought about selection when you recruitedparticipants forthe interviews , as well as how you created your interview guide and what questions you chose to include and why (2 p).
2. Conduct and recordthe interviews and make an automatic transcription in Word online according tothe instructions on the web page below. Don't transcribe manually. Note that Word transcription is not reliable when the interview contains technical terms and expressions. Attach the automatic transcript as an attachment to your submission (3 p). [Transcription with Word online](#)
3. Conduct a thematic analysis of the transcriptions. Describe your approach step by step (3 p).
4. Present the themes you have identified, describe them and use quotes from the transcripts to illustrate, show variety and convince the reader of your analysis (2 p).

2. Sketching of user interfaces

Deadline: 2025-03-28, 17:45.

Preparation: Read up on context scenarios, requirement specification, and interface sketching in Arvola (chap. 4–5) or Boyl (chap. 7–8). If you use Boyl, you can find more about requirement specification and context scenarios in Goodwin's book (2009, ch. 12). Remember to use explicit references in APA or Harvard-style with page numbers in your submission to how Arvola or Boyl/Goodwin describes how you should or can work with context scenarios, requirements, and interfacesketching and how you actually did it.

1. Write a context scenario for a task in the system and formulate requirements (functional requirements, data requirements, quality requirements, and constraints) linked to that scenario. (5 p)
2. Sketch wireflows for a scenario/task in the system. Start from the context scenario and work with alternative designs (completely different interfaces as well as different solutions within the framework of an interface). Write plus-minus lists for alternatives and consider both usability and aesthetics. (5 p)

3 Reflections on methods

Deadline: 2025-06-05, 17:45.

Preparation: Read about experiments and measurement in Säfsten & Gustavsson.

1. Describe how you planned and carried out the test of the interactive computer prototype in terms of an experiment in the group work (see pages 89–102 in Säfsten & Gustavsson). Also discuss how, based on your reading of the course literature, you could have done differently. (2 p.)
2. At what scale level are the measurements of user experience and usability (e.g. task time, task success, self-report surveys) that you used in the test of the computer prototype (or could have used)? (2 p.)
3. What diagrams, central tendency, and dispersion measures did you use in the analysis and reporting of the results of your test of the interactive computer prototype? Based on your reading of the course literature on descriptive statistics, are they suitable or should you have chosen something else? (2 p.)
4. Describe different forms of validity and reliability in relation to your interviews at the beginning of the project and in relation to the user test of the prototype. What could you have done differently to strengthen validity and reliability? (2 p.)
5. Review your group work based on research ethics (see Säfsten & Gustavsson, chapter 8). What guidelines did you follow and which ones did you violate? If you violated someone, why did you do it? What could you

have done differently? (2 p.)

Course Assessment Criteria[1]

The course has the following learning outcomes (L1–L7):

1. Use and account for basic qualitative user research methods (e.g. interviews, observation, and thematic analysis).
2. Use and account for basic quantitative user experience testing methods (e.g. task success, time, self-report questionnaires), including analysis of the results using descriptive statistics.
3. Ideate and sketch interaction design concept proposals, assess them, and make a convincing argument for one proposal based on user research results.
4. Sketch, develop and present interaction design prototypes.
5. Conduct and account for a user experience evaluation of interaction design prototypes.
6. Assess user research and evaluations with respect to scientific criteria.
7. Review interaction design projects with respect to societal and ethical aspects, as for example research ethics, gender, and sustainability.

Assessment criteria for grades 3 and 5

L1 – L7 in the table below refers to the intended learning outcomes above. PRA3 is the code for practical group work. UPG8 is the code for individual assignments.

	RATING 3	EX. MODULE	RATING 5	EX. MODULE
L1	Uses and considers several aspects of basic qualitative research methods in user studies, based on the literature and own experiences.	PRA3 UPG8	Describes exhaustively and in detail basic qualitative research methods in user studies, based on the literature and own experiences.	UPG8
L2	Uses and accounts for several aspects of basic quantitative tests of user experience, based on the literature and own experiences, including analysis of the results using descriptive statistics.	PRA3 UPG8	Describes exhaustively and in detail basic quantitative tests of user experience, based on the literature and own experiences.	UPG8
L3	Generates ideas and sketches concept proposals in interaction design, evaluates the proposals and argues convincingly for a proposal based on results from user studies.	PRA3		

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[1] The design of this part is based on the Faculty of Engineering's decision on the introduction of assessment criteria for courses at undergraduate and advanced level (DNR LIU-2019-01863).

L4	Sketches, develops and presents prototypes of interactive products and services.	PRA3 UPG8	Sketch and define interactive products and services in an exploratory and independent way, with a focus on both usability and aesthetics.	UPG8
L5	Conduct and account for evaluation of prototypes, interactive products and services with regard to user experience.	PRA3		
L6	Describes several aspects of how research methods are used and should be used for user studies and evaluations based on the literature.	UPG8	Describes exhaustively and comprehensively how research methods are used and should be used for user research and evaluations based on the literature and own experiences.	UPG8
L7	Examines interaction design projects with regard to societal and ethical aspects, such as research ethics, gender and sustainability.	PRA3 UPG8	Describes exhaustively and in detail ethical considerations in the research parts of an interaction design project rooted in the literature and own experiences.	UPG8

Intermediate grades

For grade 4, all criteria for grade 3 and half of the criteria for grade 5 must be met.

Operationalization

EX. MODULE	ASSESSMENT	MODULE RATING	COURSE GRADES
PRA3 Practical work in groups with milestones and written final reports and oral presentation	U/G	U/G	Given a G on PRA3, the course grade is determined by UPG8.
UPG8 Three-part submission.	U,3,4,5	**3:** 5 points on each of the three subtasks. **4:** Same as 3, and 22 points in total (max. 30). **5:** Same as 3, and 26 rows in total (max. 30).	

Re-submission after supplementing an assignment can be allowed for students who are close to a passing grade (3). It must be completed within two weeks of the notification of grades.

Rules for the examination

The following rules apply to the examination in this course:
- The assignments are in groups or individually, according to the instructions given for the course. However, the examination is always individual.
- It is not allowed to submit solutions copied from other students, or from

other sources, even if changes have been made. In the event of suspicion of unauthorized copying or other forms of cheating, the teacher is obliged to make a report to the university's disciplinary board.

- Generative AI techniques can be used for inspiration (i.e., in mood boards, as a sounding board), instead of dummy content (i.e., stock art, lorem ipsum text), for evaluating or proofreading your own work, if you acknowledge what systems you used and how you used them in the process in a footnote or an endnote, including which prompts you used. You are not allowed to copy generated text or images into your own answers and present them as your own.
- You should be able to explain the details of the assignment. It is also possible that you will need to explain why you or you have chosen a specific solution. This applies to everyone in a group.
- If you think you won't be able to meet a deadline, contact your teacher. You can get support and possibly a deadline at a later date. It's always better to discuss problems than to cheat.
- If you do not follow the university's and the course's examination rules, and attempt to cheat, for example by plagiarizing or using unauthorized help, it may lead to a report to the university's disciplinary board. The consequences of cheating can be a warning or suspension from studies.
- Presentation Policy. A specific end date, or deadline, generally applies to the submission of assignments in the course. This deadline can be during the course or at the end. If the presentation is not done on time, you may need to do a new set of assignments the next time the course is given.