



## Course Overview HCI – Upprifun HCI hluti

Department of Computer Science | Software Analysis & Design

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## The Assessment in the Course

- Written Exam
  - 50%
    - Will be both in Icelandic and English
    - To pass the course you must pass the final exam (with 4,75 or higher)
    - No helping material allowed in the final exam
- Group assignments
  - 40% (10% each)
- Problem solving projects
  - 10% in total (5 of the highest count)



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Remember to check,  
if you have got all your  
grades for the projects

If not, send an email to: [hildurg09@ru.is](mailto:hildurg09@ru.is)

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## Learning Outcomes

- **Knowledge**
  - Be able to describe
- **Skills**
  - Be able to use
- **Competences**
  - Be able to know when to use and why



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## Basis for the Exam - All the material in the course

- In the projects you are developing the skills and competences
  - The written exam will cover all LO levels, knowledge, skills and competences
- During lectures you are getting knowledge to be able to:
  1. Describe some of the material (knowledge LO)
  2. Use the methods/techniques in the project (skills LO)
  3. Develop deep understanding (competences LO)
- Through reading the books you also get additional knowledge to meet the LOs



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## Skills – Being able to use

1. Be able to state requirements, (both functional and non-functional) for a medium sized computer system
  - Including stating measurable usability and UX goals
2. Be able to make paper prototypes and intermedium prototypes of a software system
3. Have developed skills of evaluating in the analysis and design phase.
4. Be able to model the system design using diagrams like state, sequence and class diagrams.
5. Be able to write reports that are understandable for recipients.



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## Competences – Describe, use and compare

1. Be able to state the requirements for a software system in a comprehensive manner.
  - Including discussing the difference between functional and non-functional requirements
2. Be able to design user interface software systems according to the needs of users
  - Including discussing why user centred design is important
3. Be able to evaluate prototypes to be able to adapt to system requirements.
  - Using think-aloud method and prototype interviews
4. Be able to set out an analysis and design of a comprehensive manner in the form of reports, prototypes and models
  - Including being able to discuss these various forms, the strengths and weaknesses of each of them



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## Knowledge – be able to describe

1. Be familiar with methods for analysing software requirements.
2. Be familiar with methods for designing software.
3. Know basic principles in the design of user interfaces, to be called standards and guidelines for the design of user interfaces.
4. Know the main definitions and characteristics of object oriented modelling and design.
5. Be familiar with different methods of information gathering.
6. Know in what way the design of a computer system or application might succeed or fail because of the diversity of human beings.
7. Be familiar with the main concepts of objective design and programming.
8. Be able to identify the main types of software testing and when these are used.
9. Be able to describe the main concepts for user centred software development such as usability and user experience.



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## Methods You Have Used in the Group projects

- **Group project 1**
  1. **User groups:** Define (re-define) user groups
  2. **State requirements:** Define a requirement list with all functional and non-functional requirements
  3. **Interviews:** Prepare and conduct interviews
  4. **Use Cases:** Describe use cases
- **Group project 2**
  5. **Design ideas:** Evaluate other websites and find good design ideas from them
  6. **Sketches:** Make sketches
  7. **Prototype Interview:** Prepare and conduct a prototype interview



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## Methods Used

- **Group Project 3**
  8. **State measureable goals:** Goals for usability and user experience and describe those in the requirement list
  9. **Intermediate prototypes:** Make an intermediate prototype, where the measureable goals can be evaluated
  10. **Happy path:** Describe the design with a happy path
  11. **Think-aloud evaluation:** Conduct think-aloud evaluation with users using the prototype for measuring the usability and user experience goals
- **Problem solving project 2**
  12. **Big picture:** Draw the big picture
- **Problem solving project 3**
  13. **Heuristic evaluation:** expert evaluation method



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## For these 13 methods

1. Are able to describe those in detail
  - How these are conducted, why they are used, etc.
2. You have to be able to show that you have gained skills in using these
  - By using these in a practical project during the written exam
  - By explaining in detail how these are used
3. That you have gained competences in discussing the strengths and weaknesses of these
  - Like what are the strengths of conducting the think-aloud method with 5 users on a detailed prototype



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## Exam 2017 – Explaining a method

### 2.1 (9%) Notendahópar /User groups:

Nefnið þau sex atriði, sem notuð voru í námskeiðinu til að lýsa notendahópum og útskýrið stuttlega hvað hvert og eitt atriði felur í sér/ Name the six attributes that are used to describe user groups and describe shortly what each of them consist of:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.



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## Exam 2018 – Using a method in Practical Project

*Og hér byrja spurningarnar fimm: / And here the five questions start:*

Í námskeiðinu voru notendahópar greindir og þeim lýst með ákveðinni aðferð, þar sem fram koma 6 atriði: a) nafn notendahópsins, b) mikilvægi hans, c) helstu markmið og 3 önnur atriði um notendahópinn d), e) og f). Þið eigið að greina þau þrjú atriði fyrir notendahópinn d), e) og f), sem ekki hafa verið tilgreind hér. Greinið þau fyrir notendahópinn: „núverandi leigjendur“. Þið megið búa til upplýsingar til að geta lýst notendahópnum.

*In the course, the user groups were analysed according to a particular method, where these factors are stated: a) the name of the user group, b) the importance of the group, c) the most important goals and 3 other factors about the user group d), e) and f). User are asked to analyse the 3 factors d), e) and f) that have not been stated here. Analyse these for the user group: „Current renters“. You can make up information about the user group to be able to describe it.*



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## Exam 2018 - Discussing the methods

### 20. Frumgerðarviðtöl / Prototype Interviews

/ 40 words, soft limit - Max points: 4

Lýsið tveimur kostum við að framkvæma frumgerðarviðtöl á pappírsfrumgerðum - rökstyðjið hvern kost fyrir sig. / Describe two benefits of conducting prototype interviews on paper prototypes - substantiate your answer for each benefit.

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## You have to know the core concepts

- Usability

- The extent to which a **product, system or a service** can be used by specified **users** to achieve specified **goals** with **effectiveness, efficiency and satisfaction** in a specified **context of use** (*ISO standard 9241-210: 2019*)
- Also know the definition of the factors: *effectiveness, efficiency and satisfaction*

- User Experience

- User's perceptions and responses that result from the use **and/or anticipated** use of a system, product or service.
- NOTE 1: User' perceptions and responses include the users' emotions, beliefs, preferences, perceptions, comfort, behaviours and accomplishments that occur **before, during and after use**.



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## One Example – Exam 2016

### 3.3 (4% - 7 min) Nytsemi / Usability

Hvernig er nytsemi skilgreind samkvæmt ISO-9241 staðlinum?  
How is usability defined according to the ISO-9241 standard?



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## Be Able to Describe Other Content

- Go carefully through the slides
  - Both from Mondays and Fridays
- Make sure you will be able to describe other content of the course
  - Describing other methods than used in projects
  - Describe studies that we have covered
- Some of these subjects are also covered in the multiple choice questions



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## Exam 2016 – Describe a study

### 3.4 (4% - 7 mins) Mælingar nytsemispáttá / Measuring usability factors

Í verkefni, sem unnið var fyrir Álverið í Straumsvík og lýst er í rannsóknargrein (sem er hluti af námefninu), eru mælanlegir þættir nytsemi mældir. Nefnið nytsemispáttina og lýsið hvaða gögnum var safnað fyrir hvern og einn nytsemispátt / In a project that was done for an Aluminium Company in Iceland (that is described in a research paper that is part of the course material), measureable factors of usability are measured. Name the usability factors and explain what data was gathered to measure each factor.



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## Exam 2018 – Describe other content

### 17. Forðist insláttarvillur /Avoid input errors

/ 60 words, soft limit - Max points: 6

Útskýrið 3 atriði, sem ætluð eru til að forða notendum frá því að slá gögn rangt inn og gefið eitt dæmi um hvert atriði / Describe 3 issues, that are meant to prevent users from inserting incorrect data and give one example for each issue.



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## Learning Material and Reading



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## Teaching Material

### Interaction Design: Beyond Human-Computer Interaction

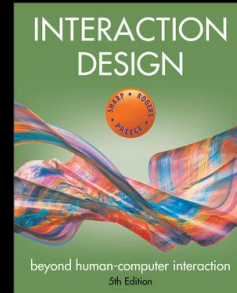
*Authors:* Preece, Sharp, Rogers

*Publisher:* Wiley

*Edition:* 5

*Year:* 2019

*ISBN-13 number:* 978-1-119-54725-9



Used in weeks: 1,2,4,5,6,7,8,11 and 12

Taught by Marta

Further reading may appear later in the course



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## Teaching material

### Book: UML Distilled Third Edition

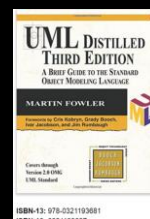
*Author:* Martin Fowler

*Publisher:* Addison-Wesley

*Edition:* 3

*Year:* 2004

*ISBN-13 number:* 978-032119368-1



Further reading may appear later in the course



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## Schedule – First Three Weeks – Marta and Skúli

Skípulag námskeiðsins og leslisti: Greining og hönnun hugbúnaðar - haust 2019				
Dags.	Þema fyrirlestrar	Kóði	Fyrirlesari	Lesefni
Vika 0				
14. ágú. 19	Engir dæmatímar í þessari viku			
Vika 1				
19. ágú. 19	Kynning á námskeiðinu	L1A	Marta	
19. ágú. 19	Greining notendahópa	L1B	Marta	ID kafli 1.5, 1.6, 2.2.4, 2.3.1, 2.3.2
23. ágú. 19	Hönnun notendaviðmóta (eingöngu tekinn upp)	L2	Marta	ID kafli 13.1 og 13.2
19. og 21. ágúst	Dæmatíma verkefni 1 - Greining notendahópa			
Vika 2				
26. ágú. 19	Virknikröfur og stóra myndin	L3A	Marta	ID kafli 11.1 - 11.3
26. ágú. 19	Almennar kröfur og viðtöl	L3B	Marta	ID kafli 11.3, 8.3, 8.4
30. ágú. 19	Lýsing á kröfum (eingöngu tekið upp)	L4	Marta	ID 11.4, 11.5, 11.6
26. og 28. ágúst	Dæmatímar - Verkefni 2 - kröfur			
Vika 3				
2. sep. 19	Um UML og Notkunartilvik	L5A	Skúli	UML Kafli 1 og 9
2. sep. 19	Meira um notkunartilvik	L5B	Skúli	UML Kafli 9
6. sep. 19	Hlutbundin forritun (eingöngu tekinn upp)	L6	Skúli	
2. og 4. sept	Dæmatímar - Vinna að skilaverkefni 1		Marta	
7.9.2019 (laugard)	Skila inn skilaverkefni 1 (23:59)		Marta	


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## Schedule – Week 4 and 5 – Marta

Vika 4				
9. sep. 19	Leiðbeiningar um viðmótshönnun	L7A	Marta	ID kafli 1.7.3
9. sep. 19	Notendavandamál, Leiðaraðferð og	L7B	Marta	ID 16.2.1
13. sep. 19	Upplýsingaöflunaraðferðir	L8	Marta	ID kafli 8
9. og 11. sept	Dæmatímar - Verkefni 3 - Leiðaraðferð		Marta	
Vika 5				
16. sep. 19	Grófhönnunarfrumgerðir	L9A	Marta	ID kafli 12.1, 12.2, 12.3, 12.5
16. sep. 19	Prófun frumgerða	L9B	Marta	ID kafli 15.1, 15.2
20. sep. 19	Google Design sprints	L10	Marta	kafli 2.1, 2.2.1
16. og 18. sept	Vinna að skilaverkefni í dæmatíma		Marta	
21.9.2019 (laugard)	Skila inn skilaverkefni 2 (kl. 23:59)		Marta	


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## Schedule – Week 6,7 and 8 - Marta

Vika 6				
23.sep.19	Nytsemi og mælanlegir þættir	L11A	Marta	ID 1.7, 14.3.1, 15.2
23.sep.19	Mælanleg nytsemismarkmið	L11B	Marta	ID 1.7, 14.3.1, 15.2
27.sep.19	Dæmi um mælingu nytsemismarkmiða	L12	Marta	Ítarefni - Rannsóknargrein sjá
23. og 25. sept	Dæmatímar - Verkefni 4		Marta	
Vika 7				
30.sep.19	Notendaupplifunarmarkmið og hugsa-upphátt	L13A	Marta	ID 1.4, 1.7, 15.2
30.sep.19	Millihönnun og viðmótshlutir	L13B	Marta	ID 7.2
4.okt.19	Ýmsar tegundir viðmóta	L14	Marta	Kafli 7
30. sept og 2. okt	Dæmatímar - Verkefni 5		Marta	
Vika 8				
7.okt.19	Mæling notendaupplifunar - 2 dæmi	L15A	Marta	ID 14.1 - 14.3, Ítarefni - Rannsóknargreinar sjá glærur
7.okt.19	Vefhönnun og flæðishönnun	L15B	Marta	ID 1.7.3, 7.2.2, 7.2.5
11.okt.19	Notendamiðuð hugbúnaðargerð	L16	Marta	ID 2
7. og 9. okt	Dæmatímar - Vinna að skilaverkefni 3			
12.okt.19	Skila skilaverkefni 3 (23:59)		Marta	


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## Schedule – Week 9 to 12 – Skúli and Marta

Vika 9				
14.okt.19	UML Stöðurit	L15	Skúli	UML Kafli 10
14.okt.19	Klasarit og nafnorðagreining	L16, L17	Skúli	UML Kafli 3, 5
18.okt.19	Dæmi um notkun ritanna	L18	Skúli	
14. og 16. okt	Dæmatímar - Verkefni 6		Skúli	
Vika 10				
21.okt.19	Runurit	L19	Skúli	UML kafli 4
21.okt.19	Runurit	L19	Skúli	UML kafli 4
25.okt.19	Farið yfir dæmi (eingöngu tekinn upp)		Skúli	
21. og 23. okt	Dæmatímar - Vinna við skilaverkefni 4			
26.okt.19	Skila skilaverkefni 4 (23:59)		Skúli	
Vika 11				
28.okt.19	Tegundir prófana á hugbúnaði	L21A	Marta	
28.okt.19	Skriflega prófið	L21B	Marta	
1.nóv.19	Hugbúnaðarferlar og viðhald kerfa	L22	Marta	ID kafli 2.3.5
28. og 30. okt	Dæmatímar - Verkefni 7 - DiglExam		Marta	
Vika 12				
4.nóv.19	Upprifun námskeiðsins - HCI	L23B	Marta	
4.nóv.19	Upprifun - UML	L23A	Skúli	
	Engir dæmatímar í þessari viku			


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