
DEGREE CURRICULUM

# EVALUATION TECHNIQUES AND USABILITY TESTING

Coordination: SENDÍN VELOSO, MONTSERRAT

Academic year 2020-21

# EVALUATION TECHNIQUES AND USABILITY TESTING 2020-21

## Subject's general information

<table>
<tr><td>Subject name</td><td>EVALUATION TECHNIQUES AND USABILITY TESTING</td></tr>
<tr><td>Code</td><td>103083</td></tr>
<tr><td>Semester</td><td>2nd Q(SEMESTER) CONTINUED EVALUATION</td></tr>
<tr><td>Typology</td><td>
<table>
<tr><th>Degree</th><th>Course</th><th>Character</th><th>Modality</th></tr>
<tr><td>Master's Degree in Informatics Engineering</td><td>1</td><td>COMPULSORY</td><td>Attendance-based</td></tr>
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<tr><td>Course number of credits (ECTS)</td><td>4.5</td></tr>
<tr><td>Type of activity, credits, and groups</td><td>
<table>
<tr><th>Activity type</th><td>PRALAB</td><td>TEORIA</td></tr>
<tr><th>Number of credits</th><td>3</td><td>1.5</td></tr>
<tr><th>Number of groups</th><td>1</td><td>1</td></tr>
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<tr><td>Coordination</td><td>SENDÍN VELOSO, MONTSERRAT</td></tr>
<tr><td>Department</td><td>COMPUTER SCIENCE AND INDUSTRIAL ENGINEERING</td></tr>
<tr><td>Teaching load distribution between lectures and independent student work</td><td>Presential class: 30% (equivalent to 33,75 h)<br>Autonomous work: 70% (equivalent to 78,75 h)</td></tr>
<tr><td>Important information on data processing</td><td>Consult this link for more information.</td></tr>
<tr><td>Language</td><td>English:</td></tr>
</table>

# EVALUATION TECHNIQUES AND USABILITY TESTING 2020-21

| Teaching staff | E-mail addresses | Credits taught by teacher | Office and hour of attention |
|---|---|---|---|
| SENDÍN VELOSO, MONTSERRAT | montse.sendin@udl.cat | 4,5 | |

## Subject's extra information

This subject is located in the second term of the first couse of the Master. Semi-presencial format.

It requires some concepts form the Human-Computer Interaction (HCI) discipline. In particular, some concepts such as *usability, interface, User Centred Design methodology* (UCD), etc. are considered as **previous concepts highly recommended**.

For those students who are not studied any related subject, some introductory material will be provided.

## Learning objectives

- Understanding the importance of the evaluation of interactive systems in the UCD (User Centred Design) context
- Develop the role of evaluator of a interactive system
- Knowing the procedure to be carried out in a usability test
- Knowing current tools for the collection and data analysis
- Defending upon a public the reports previously elaborated
- Get familiar with the user manuals available for the software installed in the usability lab.
- Extracting the main conclusions for the evaluation activities carried out, in the line of improving the usability of the interactive system
- Developing sample reports resulting from the evaluation techniques application, in a working group manner

## Competences

**University of Lleida strategic competences**

**UdL2**. Command of a foreign language.

**Degree-specific competences**

**CE14.** Capacities to conceptualise, design, develop and evaluate the person-computer interaction of products, systems, applications and computer services.

**Cross-disciplinary competences**

**EPS3.** Capacity to convey information, ideas, problems and solutions to both a specialized and no specialized public.

**Basic competences**

**CB3.** Students are able to integrate knowledge and handle complexity, and formulate judgments based on information that was incomplete or limited, include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgments

**General competences**

**CG7.** Capacity to implement and manage computer equipment manufacturing processes, guaranteeing personal and material safety, the final quality of products and their homologation.

**CG10.** Capacities to apply economic principles, manage human resources and projects, and comply with computer legislation, regulation and normalization

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## Subject contents

**Theme I** - Introduction to the Evaluation of the Usability

1.1. What is the evaluation in the HCI scope?

1.2. Objectives of the evaluation and aspects to consider

1.3. Taxonomy in evaluation methods

1.4. Integration of the evaluation techniques to the development life cycle

1.5. Conclusions

**Theme II** - Usability Testing

2.1. Introduction and technique definition

2.2. Test typologies

2.3. Usability Test Plan design and development

2.4. Preparing questionaires and other documents

2.5. Metrics and data collecting

2.6. Roles in the execution of a usability test

2.7. Putting in practice

2.8. Final report development and results presentation

2.9. Benefits and inconveniences of UT

2.10. Conclusions

**Seminar** - *UsabiliLab*: Equipament of a remote usability laboratory

**S.1.** *UserZoom*: Suport in the UT elaboration

**S.2.** Introduction to the *Eyetracking* technique

# EVALUATION TECHNIQUES AND USABILITY TESTING 2020-21

(*To interlace conveniently along the semestre, according to the timing of the students evaluation project*)

## Methodology

***Outstanding Aspects of the Methodology***

- Eminently **practical** and **applying** subject.
- **Theorical classes** and **seminar sessions** in the usability lab (*UsabiliLab*) are combined.
- **Continued avaluation** (continuous feedback student-professor, using mechanisms to apply improvements in the successive deliverables)
- **Problem Based Learning**, applied over the ICT Project developed along the 1rst semester. It is a **crossdisciplinar project** in which part of the competences of the three subjects are developed.
    - The three involved subjects are: IT Projects Management, ICT Projects: Development and Implementation and the current one.
- **Work in group** (between 3 and 5 people, as a model to follow inside a usbility avaluators team)

**Online Synchronous Theorical classes**

- An overview of this part of the HCI discipline (the evaluation) is presented.
- Illustration of the methodology and the documents to elaborate through practical **case studies**.
    - Available material from the case studies is provided (prototypes, documents, vídeos, etc.)

**Online Synchronous Laboratory sessions**

- Students are distributed in working groups, applying the **work-in-group** methodology.
- After an introduction to the available software, the students can develop their usability evaluation project during the rest of the class.
- **Practical application** of the usability testing technique, in all its dimension (planning, execution in the laboratory, posterior analysis and defense upon the class of the different elaborated reports and documents).
- **Opportunity to practise** the evaluator role, under the problem based learning context.

**Autonomous Asynchronous work (non presential)**

- The evaluation project is completed by your own.
- *The student:*
    - Experiences by his/her own with the software available.
    - Gets familiar with the Manuals and Tutorials available.
    - Goes futher in the study of the concrete tools, elaborating the written document asked.

## Development plan

| Week | Theory Session | Lab. Session | Autonomous work |
|---|---|---|---|
| 1 | Subject presentation | | Study |
| 2 | T1: Introduction to the Usability evaluation | | Study, study cases revision and *Test plan* initial approach |
| 3 | T2: Usability Testing<br>Time to revise intital ideas by working groups | | Study, study cases revision and *Test plan* development |

| | | | |
|---|---|---|---|
| 4 | T2: Usability Testing<br>Time to revise ideas/doubts by working groups | | Study, study cases revision and *Test plan* development |
| 5 | T2: Usability Testing<br>Time to revise ideas/doubts by working groups | Introduction to the *eyetracker* and to the *Tobii Studio* software (1rst Part) | Study and *Test plan* development |
| 6 | | Introduction to *UserZoom* | Autonomous learning and *Test plan* development |
| 7 | | Introduction to the *eyetracker* thechnique | Autonomous learning and *Test plan* conclusion<br>*Test Plan delivery* |
| 8 | | Keys for putting in practice Usability tests.<br>*Work-in-group:* project elaboration | Autonomous learning and *Test plan refinement*<br>*Test plan 2nd delivery* (at middle week) |
| 9 | Presential Activity: *Test Plan* oral presentation (1rst midterm day) | | |
| 10 | | Putting in practice Usability tests by the working groups (*Actv3*) | Usability Testing final revision |
| 11 | | Putting in practice Usability tests by the working groups (*Actv3*) | Usability Testing final revision |
| 12 | | Putting in practice Usability tests by the working groups (*Actv3*) | Study, study cases revision and *Results report* starting |
| 13 | | *UserZoom:* reporting results | Autonomous learning, study cases revision and *Results report* development |
| 14 | | Results report elaboration keys | Autonomous learning and *Results report* conclusion |
| 15 | T3: Putting the avaluation in practice | *Work-in-group: Results report* elaboration | *Results report delivery* (at middle week) |
| 16 | | | *Results report Refinement*<br>*Results report 2nd delivery* |
| 17 | Second midterm day: *Results report* oral presentation activity | | |
| 18 | Tutories | | |
| 19 | Recovery | | |

## Evaluation

| Activd. | Description | Weight | Mínimum Grade | In group | Presential | Mandatory | Recoverable |
|---|---|---|---|---|---|---|---|
| Actv1 | Test Plan | 25% | 5,0 | Sí | No | Sí | Sí |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Actv2 | Test plan oral presentation | 15% | No | Sí (50%)[1] | Sí | Sí | No |
| Actv3 | Test Plan put in practice | 15% | No | Sí (50%)[1] | Sí | Sí | No |
| Actv4 | Results report | 25% | 5,0 | Sí | No | Sí | Sí |
| Actv5 | Results report oral presentation | 15% | No | Si (50%)[1] | Sí | Sí | No |
| Actv6 | Theoretical Work | 15% | No | No | No | No | No |

[1]In despite of being work-in-group activities, each group member will be avaluated by his/her individual performance (5% in-group development; 10% individual intervention)

**Final grade** = 0,30 * Actv1 + 0,15 * Actv2 + 0,15 * Actv3 + 0,25 * Actv4 + 0,15 * Actv5 + 0,15 * Actv6

- Subject is passed if **final grade** is greater or equal than **5,0** and activities Actv1 and Actv4 are above the minimum required.
- The **compulsory part** has a weight of **95%**. The **optional part** is valorated in **1,5 points**, that is to say, in cas of be presented, subject is scored over 11 (1 point extra).

***Other considerations:***

- For all the activities: programmed deliveries, unmovable dates
- For the activity *Actv1*, in which the rest of work is based, it is offered a weekly tracking by the teacher, which involves feedback provision also weekly. The goal is redirecting incorrect approaches and reaching the level of especificity L'objectiu és el de reconduir enfocaments incorrectes i arribar al nivell d'especificitat, appropriateness and coherence required along the development. This weekly work *is a* ***recommendation****, not pas una requirement.* The professor will take into account the learning process observed along the tracking weeks, in order to define the final mark of the activity.
- In the activities with minimum grade required, the student can opt to a 2nd oportunity in which to apply those improvements conveniently received from the professor.
  - A *corrective factor* of 0,85% is applied to the improvements presented, which depends of the following factors:
    - 70%: feedback received weekly, since the week zero
    - 85%: feedback received only at the end, and if it is applied both, to the work and presentation), or of 60% (if they are only applied to the presentation
    - 60%: feedback received only at the end, and if it is applied only to the presentation (not to the written work)
  - The original mark of the activity is incremented regarding to the improvements delevered by students, once applied the *corrective factor*
- In the activities in group (both, 1rst and 2nd deliveries) all of the members receive the same mark only if a group development (consensual among all and cohesive enough) is proven.
- In the oral presentations all of the members have to be able to expose any of the established points.
- *In case of not overcoming the UT technique as a whole (group and individual marks):*
  - Recovery exam of the subject theorical part (19th week)

## Bibliography

**Basic bibliography**

***USABILITY TESTING***

- Carol M. Barnum. *Usability Testing and Research*. Longman (2002)
- Jeffrey Rubin , Dana Chisnell. *Handbook of Usability Testing. How to plan, design and conduct effective tests.* John Wiley & Sons, Inc. (1994)
- Peter P. Mitchell. *A Step-by-Step guite to Usability Testing*. iUniverse, Inc. (2007)