
DEGREE CURRICULUM

# HUMAN-COMPUTER INTERACTION

Coordination: GARRIDO NAVARRO, JUAN ENRIQUE

Academic year 2022-23

# HUMAN-COMPUTER INTERACTION 2022-23

## Subject's general information

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<tr><td>Subject name</td><td>HUMAN-COMPUTER INTERACTION</td></tr>
<tr><td>Code</td><td>102017</td></tr>
<tr><td>Semester</td><td>2nd Q(SEMESTER) CONTINUED EVALUATION</td></tr>
<tr><td>Typology</td><td>
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<tr><th>Degree</th><th>Course</th><th>Character</th><th>Modality</th></tr>
<tr><td>Bachelor's Degree in Computer Engineering</td><td>2</td><td>COMPULSORY</td><td>Attendance-based</td></tr>
<tr><td>Double bachelor's degree: Degree in Computer Engineering and Degree in Business Administration and Management</td><td>2</td><td>COMPULSORY</td><td>Attendance-based</td></tr>
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<tr><td>Course number of credits (ECTS)</td><td>6</td></tr>
<tr><td>Type of activity, credits, and groups</td><td>
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<tr><th>Activity type</th><td>PRALAB</td><td>TEORIA</td></tr>
<tr><th>Number of credits</th><td>3</td><td>3</td></tr>
<tr><th>Number of groups</th><td>3</td><td>1</td></tr>
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<tr><td>Coordination</td><td>GARRIDO NAVARRO, JUAN ENRIQUE</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>40% presential<br>60% autonomous work</td></tr>
<tr><td>Important information on data processing</td><td>Consult this link for more information.</td></tr>
<tr><td>Language</td><td>Catalan / Spanish</td></tr>
<tr><td>Distribution of credits</td><td>Juan Enrique Garrido (GG, GM1 and GM2)<br>Marc Viladegut (GM3)</td></tr>
</table>

# HUMAN-COMPUTER INTERACTION 2022-23

| Teaching staff | E-mail addresses | Credits taught by teacher | Office and hour of attention |
|---|---|---|---|
| GARRIDO NAVARRO, JUAN ENRIQUE | juanenrique.garrido@udl.cat | 3 | |
| VILADEGUT ABERT, MARC | marc.viladegut@udl.cat | 9 | |

## Subject's extra information

Human-Computer Interaction (HCI), a discipline in which the subject is framed, is a newly developed area, like many others related to the field of computers, with a markedly interdisciplinary nature and in recent years has witnessed a boom spectacular in its various aspects.
This rise occurs due to the growing capacity of computer equipment and the existence of tools and increasingly sophisticated applications. So today does not surprise us to reach our cursor to the latest information from anywhere regarding any subject, participate in a conversation in which the partners are separated by oceans knowing that the presence of our users is not limited and even the voice, even in dreams, get your computer to give us advice on the best way to write a working paper, whether it is an ad, a review or a book's prologue.
In academia this trend is especially reflected in proposals for the structure of the curriculum of Informatics as the major US computer-related companies, the ACM and the IEEE. It is also worth noting the proliferation of universities worldwide that offer courses related to this matter. The report ACM / IEEE-CS "Joint Curriculum Task Force Computing Curricula 1991" identifies nine subject areas to cover the matter of the discipline of computer science, with the Human-Computer Interaction one.
In 1988, the Special Interest Group in Human-Computer Interaction, ACM-SIGCHI, launched a committee with the aim of making a curriculum. Its task was to draft a series of recommendations on education in IPO and in 1992 drafted the document "Curricula for Human-Computer Interaction" with a series of recommendations for conducting courses IPO.
Since February 2001 he has a new version of the report of ACM / IEEE curriculum guides for teachers to develop computer programs.
The final report appeared in the summer of 2001. In this document, "Ironman Report", the IPO has already found as a special area between the fourteen defined.
Therefore, the assessment that the IPO worth as an independent discipline for major computer companies make logical inclusion in the curriculum, apart from the need for training in this discipline for professionals in the industry.
To cover these aspects and objectives, the IPO should cover many different areas, including various aspects of both humans and the computer: Computer (design and engineering interfaces), Psychology (theory and application of the cognitive processes and empirical analysis of user behavior), sociology and anthropology (interaction between technology, work and organizations) and Industrial Design (interactive products), among others.
The topics were chosen ACM curriculum derived from consideration of the interrelated aspects of Human-Computer Interaction: The nature of the interaction, use and context of computers, characteristics of human beings, computers and interface architecture and development process. Also keep in mind the presentation of projects and evaluating them.
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## Learning objectives

Do understand the future in computer engineering graduate **the most important part of technology are the people who use it** and, therefore the enormous importance of the systems interfaces to be programmed and/or management to ensure the success of the same.

**Descriptors of the subject** are:

- Knowing the basics of Human-Computer Interaction.
- Understanding the importance of creating usable interfaces.
- Interactive learning methodologies to develop User Centered applications.
- Establish the connection with the Software Engineering.
- Ability to identify and analyze aspects of the user experience in real examples.
- To know the main aspects of accessibility in ICTs.

## Competences

**Transversal competences of the degree**

- **EPS11**. Ability to understand user needs expressed in non-technical language.

**Common training modules to computer branch**

- **GII-CRI2**.Capacidad to plan, design, deploy and manage projects, services and systems in all areas, leading its implementation and continuous improvement and assessing their economic and social impact.
- **GII-CRI12**. Knowledge and application of features, functionality and structure of databases that allow their proper use, and design and analysis and implementation of applications based on them.
- **GII-CRI13**.Conocimiento and implementation of the necessary tools for storage, processing and access to information systems, including web-based.
- **GII-CRI16**. Knowledge and application of the principles, methodologies and life cycles of software engineering.
- **GII-CRI17**. Ability to design and evaluate human-computer interfaces that guarantee accessibility and usability of systems, services and applications.

## Subject contents

In terms of content, the subject presents first, the foundations of the discipline of Human-Computer Interaction, and then focuses on two main themes:

**1.-Initiation of Usability Engineering and User Centered Design (UCD)**

- People interacting with technology, introduction.
- Concept and Importance of the User Interface
- Usability, User eXperience (UX) and Accessibility
- User Centered Design (UCD)
- Usability Engineering, MPIu+a process model, as UCD model.
- Stages of the methodology
    - Main activities and techniques
    - Tools, utilities and examples to support
    - Prototyping and Evaluation

- User Tests

**2. - Prototyping techniques**

- Introduction to Interactive Systems Prototyping
- Types of prototypes
  - Low Fidelity
  - Midlevel
  - High Fidelity

**3. - Accessibility**

- To understand the concept of accessibility in the context of the subject
- To learn how to evaluate the accessibility of user interfaces

## Methodology

The course is developed as follows:

- A **large group** classes (GG) presents the **theoretical contents** of the subject.
  - These contents are complemented with **examples**, some **workshop**.
  - It encourages **debate discussion** of topics related to the subject among students.
  - Related to this part, the student must complete a series of **activities related to any lecture or reading teacher or some external professional**.

- In **medium group** classes (GM1 / GM2 / GM3) the students develop an interactive design project
  - At the beginning of the year, a **project** is presented a to the students (grouped by 3 people at most) that will be developed during the semester.
  - The project is progressing through the different phases following the methodology and techniques explained in the subject.

## Development plan

| | THEORY | | | LABORATORY | | |
|---|---|---|---|---|---|---|
| week 1 | 09/feb | Presentation<br>DCU - Foundations | | GM1<br>GM2<br>GM3 | 10/feb<br>08/feb<br>08/feb | Introduction to the GLOABL project to be developed<br>Groups definition and explanation of the working methogology<br>Act GR1 - Requirements Analysis (Explanation) |
| week 2 | 16/feb | User Center Design (MPIu+a) | | GM1<br>GM2<br>GM3 | 17/feb<br>15/feb<br>15/feb | Act GR1 - Requirements Analysis |
| week 3 | 23/feb | Prototypes | | GM1<br>GM2<br>GM3 | 24/feb<br>22/feb<br>22/feb | Act GR1 - Requirements Analysis (Delivery -. First part of the class)<br>Act GR2 - Paper Prototype (Presentation - Second part of the class) |
| week 4 | 02/mar | User Interface Design | | GM1<br>GM2<br>GM3 | 03/mar<br>01/mar<br>01/mar | Act GR2 - Paper Prototype |
| week 5 | 09/mar | Human Factor | | GM1<br>GM2<br>GM3 | 10/mar<br>08/mar<br>08/mar | Act GR2 - Paper Prototype (Lliurament)<br>Act GR3 - Style Guide + Wireframe (Presentation) |
| week 6 | 16/mar | Human Factor | | GM1<br>GM2<br>GM3 | 17/mar<br>15/mar<br>15/mar | Act GR3 - Style Guide + Wireframe |
| week 7 | 23/mar | Student Party (Cappont) | | GM1<br>GM2<br>GM3 | 24/mar<br>22/mar<br>22/mar | Act GR3 - Style Guide + Wireframe |
| week 8 | 27-31 mar | Exam | | | | |
| Easter (3-11 abril) | | | | | | |
| week 9 | 13/apr | Usability Evaluation (1/2) (Delivery of the Act IND1 - Factors humans) | | GM1<br>GM2<br>GM3 | 14/apr<br>12/apr<br>12/apr | Act GR3 - Style Guide + Wireframe |
| week 10 | 20/apr | Usability Evaluation (2/2) | | GM1<br>GM2<br>GM3 | 21/apr<br>19/apr<br>19/apr | Act GR3 - Style Guide + Wireframe (Delivery)<br>Act GR4 - Wireframes evaluation between groups (Design Guides IU + Style Guide). Explanation |
| week 11 | 27/apr | Student Party (UdL) | | GM1<br>GM2<br>GM3 | 28/apr<br>26/apr<br>26/apr | Act GR4 - AWireframes evaluation between groups (Design Guides IU + Style Guide). (Delivery)<br>Act GR5 - Heuristic Evaluation (Explanation) |
| week 12 | 04/may | Styles and Paradigms (Interaction) | | GM1<br>GM2<br>GM3 | 05/may<br>03/may<br>03/may | Act GR5 -Heuristic Evaluation |

| | | | | | | |
|---|---|---|---|---|---|---|
| week 13 | 11/may | Local Party | GM1 | 12/may | Delivery of Act GR5 (before class)<br>Act GR6 - Final Presentation (Explanation) | |
| | | | GM2 | 10/may | | |
| | | | GM3 | 10/may | | |
| week 14 | 18/may | Accessibility and International Talk | GM1 | 19/may | Act GR6 Final Presentation | |
| | | | GM2 | 17/may | | |
| | | | GM3 | 17/may | | |
| week 15 | 25/may | Accessibility and Accessibility Evaluation | GM1 | 28/may | Act GR6 - Final Presentation. (Delivery) | |
| | | | GM2 | 24/may | | |
| | | | GM3 | 24/may | | |
| weeks 16-18 | 29 may - 16 jun | Exam | | | | |
| week 19 | 19-23 jun | Tutorships | | | | |
| seweek 20 | 16-30 jun | Remedial Exam | | | | |
| | 28/may | Delivery of the Act IND2 Accessibility Evaluation | | | | |

## Evaluation

| ACTIVITY | % FINAL MARK | DESCRIPTION | | | Minimum qualification | Re-take |
|---|---|---|---|---|---|---|
| **Individual Activities** | 30 % | IND1 | 50 % | Human Factors | 4 | Yes |
| | | IND2 | 50 % | Accessibility Evaluation | | |
| **Group Activities** | 40 % | GM1 | 15 % | Requirements Analisys | 4 | Yes |
| | | GM2 | 15 % | Paper Prototype | | |
| | | GM3 | 15 % | Style Guide + Wireframe | | |
| | | GM4 | 15 % | Wireframe Evaluation | | |
| | | GM5 | 15 % | Heuristic Evaluation | | |
| | | GM6 | 25 % | Final Project + Presentation | | |
| **Theory** | 30 % | Ex1 | 50 % | Exam 1 | 5 | Yes |
| | | Ex2 | 50 % | Exam 2 | | |
| **Final Mark = Individual Activities * 0.30 + Group Activities* 0.40 + Theory * 0,30** | | | | | | |

**IMPORTANT:**

Minimum mark for passing the subject FINAL MARK = 5

The activities "Individual Activities" and "Group Activities" should be recovered if the qualification is less than 4.

Not Presented = 0

The recovered activities do not get the same grade as the first time (20% penalty)

The activity "Theory" should be recovered if the qualification is less than 5.

Partial examns will have the opportunity to be recovered individually.

To pass the course, the activity "Theory" must be => 5.

## Bibliography

All the contents will be delivered in SAKAI vitual campus.

Most of the related materil is available at: http://www.grihotools.udl.cat/mpiua

This course, as **novelty**, the students have acces to the online videos about the main lectures: **http://www.grihotools.udl.cat/mpiua/curso-ipo**

In general, no software is needed. Nevertheless, when it will be nedded, the teachers will provide all.

**Recommended Bibliografy**

- Dix, A. ;Finlay, J. ; Abowd, G. ; Beale R. (2004). ***Human-Computer Interaction***. Pearson Education Ltd. (3rdedition)
- Brink, T.; Gergle,D.; Wood, S.D. (2002). ***Design web sites that work: Usability forthe Web***. Morgan-Kaufmann.
- Granollers, T.;Lorés, J.; Cañas, J.J. (2005). ***Diseño de sistemas interactivos centrados enel usuario***. Editorial UOC.


**Webs & blogs:**


- http://www.interaction-design.org
- http://olgacarreras.blogspot.com
- http://www.uxbooth.com
- https://www.smashingmagazine.com