



Universitat de Lleida

# DEGREE CURRICULUM **HUMAN-COMPUTER INTERACTION**

Coordination: GRANOLLERS SALTIVERI, ANTONI

Academic year 2016-17

## Subject's general information

<b>Subject name</b>	HUMAN-COMPUTER INTERACTION			
<b>Code</b>	102017			
<b>Semester</b>	2nd Q(SEMESTER) CONTINUED EVALUATION			
<b>Typology</b>	<b>Degree</b>	<b>Course</b>	<b>Typology</b>	<b>Modality</b>
	Double bachelor's degree: Degree in Computer Engineering and Degree in Business Administration and Management	2	COMPULSORY	Attendance-based
	Bachelor's Degree in Computer Engineering	2	COMPULSORY	Attendance-based
	Master's Degree in Computer Engineering		COMPLEMENTARY TRAINING	Attendance-based
<b>ECTS credits</b>	6			
<b>Groups</b>	1GG,3GM			
<b>Theoretical credits</b>	3			
<b>Practical credits</b>	3			
<b>Coordination</b>	GRANOLLERS SALTIVERI, ANTONI			
<b>Department</b>	INFORMATICA I ENGINYERIA INDUSTRIAL			
<b>Teaching load distribution between lectures and independent student work</b>	40% presential 60% autonomous work			
<b>Important information on data processing</b>	Consult <a href="#">this link</a> for more information.			
<b>Language</b>	Catalan			
<b>Distribution of credits</b>	Toni Granollers Saltiveri (GG) Unknown teacher (GM1, GM2 i GM3)			
<b>Office and hour of attention</b>	In order to provide greater flexibility to students, teachers do not make a schedule. However, we are fully open to handle any student whenever necessary. To do this, arrange day and time with the teacher/s (in person, by e-mail, ...).			

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
GARRIDO NAVARRO, JUAN ENRIQUE	juanenrique.garrido@diei.udl.cat	9	
GRANOLLERS SALTIVERI, ANTONI	antoni.granollers@udl.cat	3	Arrange by e-mail

## 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 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

## 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

	MAIN GROUP		MEDIUM GROUP
week 1	Presentation Start with: 1.- Fundamentals. Usability, Accessibility, UX	GM1	Explanation of the PROJECT to develop Form the groups, ...
		GM2	
		GM3	
week 2	2.- Requirements Eng.	GM1	Ethnographic analisys
		GM2	Ethnographic analisys
		GM3	Ethnographic analisys
week 3	3.- UCD-MPlu+a	GM1	Ethnographic analisys (delivery)
		GM2	Ethnographic analisys (delivery)
		GM3	Ethnographic analisys (delivery)
week 4	4.- Prototyping	GM1	Paper prototyping
		GM2	Paper prototyping
		GM3	EPS party
week 5	4.- Prototyping - UI Dessing	GM1	Paper prototyping
		GM2	Paper prototyping (delivery)
		GM3	Paper prototyping (delivery)
week 6	5.- The Human Factor	GM1	Paper prototyping (delivery)
		GM2	Wireframe Visio / InVision
		GM3	Wireframe Visio / InVision
Setmana Santa			

week 7	5.- The Human Factor Act IND1 - READINGS	GM1	
		GM2	Wireframe Visio / InVision
		GM3	Wireframe Visio / InVision
week 8	Professional talk: Siân Lindley	GM1	Wireframe Visio / InVision (delivery)
		GM2	Wireframe Visio / InVision (delivery)
		GM3	Wireframe Visio / InVision (delivery)
week 9	Setmana d'Activitats d'Avaluació Programades (parcial)		
week 10	Local festivity	GM1	Prototype SW
		GM2	Prototype SW
		GM3	Prototype SW
week 11	6.- Evaluation methods (1/2)	GM1	Prototype SW
		GM2	Prototype SW
		GM3	Prototype SW
week 12	6.- Evaluation methods (2/2)	GM1	Visit UsabiliLAB (preparació de materials avaluació)
		GM2	Visit UsabiliLAB (preparació de materials avaluació)
		GM3	Visit UsabiliLAB (preparació de materials avaluació)
week 13	Analisis of a collection of examples	GM1	Act IND2 - Heuristic Evaluation Deliver at the end of the class
		GM2	
		GM3	
week 14	7.- Accessibility	GM1	
		GM2	Prototype SW
		GM3	Prototype SW
week 15	7.- Accessibility	GM1	Delivery of Prototype SW + User's Evaluation + presentation
		GM2	Delivery of Prototype SW + User's Evaluation + presentation
		GM3	Delivery of Prototype SW + User's Evaluation + presentation

## Evaluation

Individual Activities	15%	IND1	50%	Readings
		IND2	50%	Heuristic
Group Activities	45%	GR1	15%	Anàlisi ethnografic
		GR2	15%	Paper prototype
		GR3	20%	Wireframe
		GR4	20%	Software prototype
		GR5	15%	Evaluation with users
		GR6	15%	Presentation
1r Parcial	20%	Parcial1		
2n Parcial	20%	Parcial2		
<b>FINAL MARK = Individual Activities * 0.15 + Group Activities * 0.45 + 1r Parcial * 0.20 + 2n Parcial * 0.20</b>				

## IMPORTANT:

- ALL the activities and exams are mandatory
- Minimum mark for passing the subject FINAL MARK = 5
  - 4.9 is not 5
  - Not Presented = 0
- Every activity or exam with mark is below 4 must be resubmitted
  - 3.9 is not 4
  - Not Presented = 0
- Partial exams will have the opportunity to recover separately

## Bibliography

All the contents will be delivered in SAKAI virtual campus.

Most of the related material is available at: <http://www.grihotools.udl.cat/mpiu>

This course, as **novelty**, the students have access to the online videos about the main lectures:  
<http://www.grihotools.udl.cat/mpiu/curs-ipo>

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

## Recommended Bibliography

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

Webs & blogs:

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

