



DEGREE CURRICULUM

HUMAN-COMPUTER INTERACTION

Coordination: GARRIDO NAVARRO, JUAN ENRIQUE

Academic year 2021-22

Subject's general information

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

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
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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

GRUP GRAN			GRUP MITJÀ		
setmana 1	07/feb	Presentació Assignatura Fonaments. Usabilitat, Accessibilitat, UX ... DCU	GM1	09/feb	Planteig del sistema GLOBAL a desenvolupar Formar grups, explicar dinàmica de les classes de GM ... Explicar Anàlisi de Requeriments
			GM2	09/feb	
			GM3	10/feb	
setmana 2	14/feb	Disseny Centrat en l'Usuari (MPLU+a)	GM1	16/feb	Anàlisi etnogràfic aplicat al sistema a desenvolupar
			GM2	16/feb	
			GM3	17/feb	
setmana 3	21/feb	Prototipat	GM1	23/feb	Act GR1 - Anàlisi etnogràfic aplicat al sistema a desenvolupar (classe) Realització prototip de Paper (Presentació - 2ª mitja classe)
			GM2	23/feb	
			GM3	24/feb	
setmana 4	28/feb	Disseny de la Interfície d'Usuari	GM1	02/mar	Prototip baix nivell
			GM2	02/mar	
			GM3	03/mar	
setmana 5	07/mar	El Factor Humà	GM1	09/mar	Act GR2 - Realització prototip de Paper (Lliurament) Inici Guia d'estil
			GM2	09/mar	
			GM3	10/mar	
setmana 6	14/mar	El Factor Humà (lliurament Act IND1 - Factors humans)	GM1	16/mar	Guia d'estil
			GM2	16/mar	
			GM3	17/mar	
setmana 7	21/mar	Evaluación de la usabilitat (1/2)	GM1	23/mar	Guia d'estil
			GM2	23/mar	
			GM3	24/mar	
setmana 8	28/mar	Evaluación de la usabilitat (2/2)	GM1	30/mar	Guia d'estil
			GM2	30/mar	
			GM3	31/mar	
setmana 9	4-8 Abril	Setmana d'Activitats d'Avaluació Programades (parcial)			
Setmana Santa					
setmana 10	18/abr	Setmana Santa	GM1	20/abr	Act GR3 - Guia d'Estil + Wireframe (Lliurament)
			GM2	20/abr	
			GM3	21/abr	
setmana 11	25/abr	Estils i Paradigmes d'Interacció	GM1	27/abr	Avaluació wireframes entre els grups (Guidelines disseny IU +
			GM2	27/abr	
			GM3	28/abr	
setmana 12	02/may	Xerrada internacional (aquesta xerrada pot canviar de data en funció de la disponibilitat del ponent)	GM1	04/may	Avaluació wireframes entre els grups (Guidelines disseny IU + (Lliurament)
			GM2	04/may	
			GM3	05/may	
setmana 13	09/may	Accessibilitat	GM1	11/may	Act GR5 - Avaluació heurística Lliurament fins abans de la següent classe de GM
			GM2	11/may	
			GM3	12/may	
setmana 14	16/may	Accessibilitat	GM1	18/may	Lliurament Act GR5 abans de classe Començament Act GR6
			GM2	18/may	

			GM3	19/may	
setmana 15	23/may	Avaluació d'accessibilitat	GM1	25/may	Act GR6 - Acabament del projecte final i la presentació
			GM2	25/may	
			GM3	26/may	

Evaluation

Individual Activities	30%	IND1	30%	Human Factors
		IND2	30%	Accessibility Evaluation
		IND3	40%	Class follow-up
Group Activities	40%	GR1	15%	Requirements Analysis (ethnographic)
		GR2	15%	paper Prototype
		GR3	15%	Style Guide + Wireframe
		GR4	15%	wireframes evaluation
		GR5	15%	Heuristic Evaluation
		GR6	25%	Final Project + presentation
1r Parcial	15%	Parcial1		
2n Parcial	15%	Parcial2		
FINAL MARK =				
Individual Activities * 0.30 + Group Activities * 0.40 + 1r Parcial * 0.15 + 1r Parcial * 0.15				

IMPORTANT:

- **ALL the activities and exams are MANDATORY (except IND3)**
- **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
 - The recovered activities do not get the same grade as the first time (20% penalty)
- Partial exams will have the opportunity to recover separately
- To pass the course, **mean of both exams must be >= 5**. Bear in mind that **neither exam can have less than 4 points**
- If the minimum grade is not reached in the activities or exams, the maximum grade that will appear in the minutes will be 4, regardless of whether the application of the indicated percentages may lead to a higher result.

Bibliography

All the contents will be delivered in SAKAI virtual campus.

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

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