ANX-PR/CL/001-01

LEARNING GUIDE

SUBJECT

103001036 - Hci: Introduction And Design Methods

DEGREE PROGRAMME

10AZ - Master Universitario En Innovación Digital

ACADEMIC YEAR & SEMESTER

2023/24 - Semester 1

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Learning guide

1. Description

1.1. Subject details

Name of the subject	103001036 - Hci: Introduction And Design Methods
No of credits	6 ECTS
Type	Optional
Academic year ot the programme	First year
Semester of tuition	Semester 1
Tuition period	September-January
Tuition languages	English
Degree programme	10AZ - Master Universitario en Innovación Digital
Centre	10 - Escuela Tecnica Superior De Ingenieros Informaticos
Academic year	2023-24

2. Faculty

2.1. Faculty members with subject teaching role

Name and surname	Office/Room	Email	Tutoring hours *
Cristian Moral Martos (Subject coordinator)	5110	cristian.moral@upm.es	W - 10:00 - 14:00 Th - 12:00 - 14:00 It is required to ask for an appointment by email.
Elena Villalba Mora	5110	elena.villalba@upm.es	M - 10:00 - 12:00 W - 10:00 - 12:00 F - 10:00 - 12:00 It is required to ask for an appointment by email.

* The tutoring schedule is indicative and subject to possible changes. Please check tutoring times with the faculty member in charge.

3. Skills and learning outcomes *

3.1. Skills to be learned

CE-DIPO01 - Capacidad para conceptualizar, diseñar y desarrollar la interacción persona-ordenador de productos y servicios innovadores

CE-DIPO03 - Habilidad para hacer conexiones entre los deseos y necesidades del consumidor o cliente y lo que la tecnología puede ofrecer

CE-DIPO04 - Capacidad para analizar las necesidades de información que se plantean en un entorno y llevar a cabo en todas sus etapas el proceso de diseño centrado en el usuario

CG03 - La capacidad de usar la lengua inglesa de manera competente, es decir, con capacitación para tareas complejas de trabajo y estudio.

3.2. Learning outcomes

RA6 - Communicate and describe the results of the stages of the user-centred design process

RA8 - Run different qualitative techniques to study the context of use (user, tasks, and environment) of an interactive system

RA7 - Understand how to design an interactive system using a user-centred approach

RA9 - Analyse qualitative data to specify the design requirements related to the context of use

RA13 - Understand methods to communicate the design intent

RA10 - Understand the main heuristics that have to be considered to design a usable interactive system

RA37 - Understand the term usability and its attributes

RA38 - Understand how to process information and what are the limitations and diversity of human beings in their interaction with computer systems

RA39 - Understand the user-centred approach

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* The Learning Guides should reflect the Skills and Learning Outcomes in the same way as indicated in the Degree Verification Memory. For this reason, they have not been translated into English and appear in Spanish.

4. Brief description of the subject and syllabus

4.1. Brief description of the subject

This course presents: first, an overview and introduction to the field of human-computer interaction and usability; second, an introduction to the methods to elicit user requirements; and third, the course will emphasize the importance of paying attention to user needs and cognitive functioning in order to design usable systems.

This course also provides practical knowledge of how to use well-known and established HCI design methods as well as theoretical knowledge of how to think and reason on them during the design process. Interaction design we will approached from the perspective of user-centred design, presenting specific techniques to explore and refine the behaviour of products and services.

The course will also introduce visual design, heuristics, interaction methods and devices and specific interaction paradigms.

4.2. Syllabus

1. Introduction and conceptualization

    1.1. Introduction of Human Computer Interaction

    1.2. Understanding basic concepts of HCI

2. Usability

3. Human factors. Information Processing.

4. Interaction styles and devices

5. User Centred Design Process

6. Regulatory and Ethical aspects

7. User research - Context of use

    7.1. Analysis of the context of use

        7.1.1. Data collection techniques

        7.1.2. Question formulation

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5. Schedule

5.1. Subject schedule*

Week	Classroom activities	Laboratory activities	Distant / On-line	Assessment activities
1	**1.1. Introduction to HCI** Duration: 01:00 Lecture **1.2. Understanding basic concepts of HCI** Duration: 01:00 Lecture **2. Usability** Duration: 02:00 Lecture			
2	**2. Tutoring** Duration: 02:00 Additional activities			**PRESENTATION: Assessment of usability attributes [non-recoverable]** Group presentation Continuous assessment Presential Duration: 05:00
3	**3. Human factors** Duration: 02:00 Lecture **4. Interaction styles and devices** Duration: 02:00 Lecture			
4	**5. User-Centred Design Process** Duration: 01:00 Lecture **6. Regulatory and Ethical aspects** Duration: 01:00 Lecture **7.1. Analysis the context of use. 7.1.1. Data collection techniques** Duration: 02:00 Lecture			
5	**7.1.2. Question formulation** Duration: 02:00 Problem-solving class **7.1.3. Interviewing users** Duration: 02:00 Problem-solving class			**PROJECT: Definition of interview questions [non-recoverable]** Group work Continuous assessment Not Presential Duration: 02:00

6	**7.1.3. Interviewing users** Duration: 02:00 Problem-solving class **7.1.4. Contextual inquiry** Duration: 02:00 Problem-solving class			
7	**7.2.1. Coding qualitative data** Duration: 02:00 Lecture **7.2.1. WORKSHOP: Coding qualitative data** Duration: 02:00 Problem-solving class			
8	**7.2.2. Validation of qualitative analysis** Duration: 02:00 Lecture **7.3. Specification of the context of use** Duration: 02:00 Lecture			
9	**7.2.2. WORKSHOP: Validation of qualitative analysis** Duration: 02:00 Problem-solving class **7.3. WORKSHOP: Specification of the context of use** Duration: 02:00 Additional activities			**PROJECT: Qualitative analysis of a context of use [non-recoverable]** Group work Continuous assessment Not Presential Duration: 15:00
10	**8.1. Design heuristics** Duration: 02:00 Lecture **8.1. WORKSHOP: Design heuristics** Duration: 02:00 Problem-solving class			
11	**8.1. Tutoring** Duration: 02:00 Additional activities			**PRESENTATION: Assessment of heuristics [non-recoverable]** Group presentation Continuous assessment Presential Duration: 05:00
12	**8.2. Navigation flows. Scheme layouts. Sketching.** Duration: 02:00 Lecture **8.2. WORKSHOP: Navigation flows. Scheme layouts. Sketching.** Duration: 02:00 Problem-solving class			**PROJECT: Designing the user interaction [non-recoverable]** Group work Continuous assessment Not Presential Duration: 05:00
13	**9.1. WORKSHOP: Paper-based low-fidelity prototyping** Duration: 02:00 Problem-solving class **9.1. WORKSHOP: Paper-based low-fidelity prototyping** Duration: 01:30			

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	Problem-solving class			
14	**9. Tutoring** Duration: 02:00 Additional activities **9.2. WORKSHOP: Software-based low-fidelity prototyping** Duration: 02:00 Problem-solving class			
15	**6. Adoption and acceptance** Duration: 02:00 Lecture **9. Tutoring** Duration: 02:00 Additional activities			**PROJECT: Low-fidelity prototypes [non-recoverable]** Group work Continuous assessment Not Presential Duration: 10:00
16				
17				**Final Exam** Written test Continuous assessment and final examination Presential Duration: 03:00

Depending on the programme study plan, total values will be calculated according to the ECTS credit unit as 26/27 hours of student face-to-face contact and independent study time.

* The schedule is based on an a priori planning of the subject; it might be modified during the academic year, especially considering the COVID19 evolution.

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6. Activities and assessment criteria

6.1. Assessment activities

6.1.1. Assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
2	PRESENTATION: Assessment of usability attributes [non-recoverable]	Group presentation	Face-to-face	05:00	10%	/ 10	CG03 CE-DIPO03
5	PROJECT: Definition of interview questions [non-recoverable]	Group work	No Presential	02:00	5%	5 / 10	CE-DIPO04 CG03
9	PROJECT: Qualitative analysis of a context of use [non-recoverable]	Group work	No Presential	15:00	20%	5 / 10	CG03 CE-DIPO04
11	PRESENTATION: Assessment of heuristics [non-recoverable]	Group presentation	Face-to-face	05:00	10%	/ 10	CG03 CE-DIPO03
12	PROJECT: Designing the user interaction [non-recoverable]	Group work	No Presential	05:00	10%	5 / 10	CG03 CE-DIPO01
15	PROJECT: Low-fidelity prototypes [non-recoverable]	Group work	No Presential	10:00	15%	5 / 10	CE-DIPO01 CG03
17	Final Exam	Written test	Face-to-face	03:00	30%	5 / 10	CG03 CE-DIPO01 CE-DIPO03 CE-DIPO04

6.1.2. Global examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
17	Final Exam	Written test	Face-to-face	03:00	30%	5 / 10	CG03 CE-DIPO01 CE-DIPO03 CE-DIPO04

6.1.3. Referred (re-sit) examination

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Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
Final written exam	Written test	Face-to-face	03:00	100%	5 / 10	CG03 CE-DIPO01 CE-DIPO03 CE-DIPO04

6.2. Assessment criteria

Grading criteria

The projects will be evaluated during their iterative development during the course. Grading of students will be based on:

1) Quality of the oral communication skills.

2) Ability to debate

3) Ability to understand concepts.

Progressive evaluation system

A **progressive evaluation** is carried out through a project (broken down into a set of activities) and two presentations. Both are carried out in a team, and weigh, respectively, 50% and 20% of the final grade. Completion of the project is mandatory during the teaching period, so none of its submissions can be recovered either in the global evaluation or in the extraordinary one, since all the assignments have a dependency on the previous one and therefore cannot be redone individually. Due to this dependency, the submissions of the project have a minimal grade of 5.

Oral presentations are performed in the classroom, and then cannot be redone.

The remaining 30% of the final grade will be assessed trough a final written exam in which it will be evaluated that the student has adequately assimilated the concepts explained in the subject, as well as their critical spirit and capacity for analysis focused on said concepts. The exam will take place on the day of the official exam of the subject, so it will not be possible to recover it in the global evaluation (since they coincide in time). As this exam is

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the only individual assessment, it is also required to obtain a minimal grade of 5 to pass the subject.

Global evaluation process

The **global evaluation** of the subject consists of carrying out a final written exam (30% of the final grade) in which it will be evaluated that the student has adequately assimilated the concepts dealt with in the subject, as well as their critical spirit and capacity for analysis focused on said concepts. This examination coincides with the one carried out by means of progressive evaluation. The rest of the evaluation activities are not recoverable, and therefore must be carried out during the teaching period. As this exam is the only individual assessment, it is also required to obtain a minimal grade of 5 to pass the subject.

Extraordinary evaluation

The **extraordinary evaluation** of the subject consists of carrying out a final written exam in which it will be evaluated that the student has adequately assimilated the concepts and abilities explained in the subject, as well as their critical spirit and capacity for analysis focused on said concepts. This exam weighs 100% of the final grade.

7. Teaching resources

7.1. Teaching resources for the subject

Name	Type	Notes
Moodle of the course	Web resource	https://moodle.upm.es/titulaciones/oficiales
Interaction Design: Beyond Human-Computer Interaction.	Bibliography	Helen Sharp, Yvonne Rogers, Jenny Preece. 5th Edition. John Wiley & Sons, 2019. Available in paper format in the Library, and in electronic format (3rd edition) through https://ingenio.upm.es

Software for Use: A Practical Guide to the Models and Methods of Usage-Centered Design	Bibliography	Larry L. Constantine, Lucy A.D. Lockwood. Addison-Wesley, 1999. Available in paper format in the Library, and in electronic format through https://ingenio.upm.es
Usability Engineering	Bibliography	Jacob Nielsen. AP Professional, 1993. Available in electronic format through https://ingenio.upm.es
The coding manual for qualitative researchers	Bibliography	Johnny Saldaña. 2nd Edition. SAGE, 2013. Available in paper format in the Library.

8. Other information

8.1. Other information about the subject

The objective of this course is to learn methods and technique to design interactive systems that have an adequate degree of usability and accessibility. Taking this into account, and the UN recommendations on SDGs, this subject deals with competencies related to the following SDGs:

- **Goal 4 Quality education** - Ensure inclusive, equitable and quality education and promote lifelong learning opportunities for all. To facilitate this objective, interactive systems designed for teaching, which are increasingly important in society, must meet usability and accessibility requirements discussed in the subject.
- **Goal 8 Decent work and economic growth** - Promote inclusive and sustainable economic growth, employment and decent work for all. Today many jobs depend on the use of interactive systems. These systems must meet usability and accessibility requirements to promote equal opportunities at work.
- **Goal 10 Reduced inequalities** - To favor the inclusion of all people in society, interactive systems that are designed for all types of activities, including citizen participation, culture and leisure, must meet the usability and accessibility requirements covered in the subject.

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NOTE 1: What is included in this guide will be applied if and only if the course has the necessary human and material resources to be able to apply what is set forth here. In case of not having the necessary means, both the teaching and the way of evaluating the students will be adapted to the available means.

NOTE 2: Please bear in mind tutoring hours may change along the course. Please, ask for an appointment in advance.

NOTE 3: Please note that concrete dates for the assignments will be informed at the beginning of the course.