



POLITÉCNICA

INTERNATIONAL
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COORDINATION PROCESS OF
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PR/CL/001



E.T.S. de Ingenieros
Informáticos

ANX-PR/CL/001-01

LEARNING GUIDE

SUBJECT

103000870 - Design Methods For Human-computer Interaction

DEGREE PROGRAMME

10AZ - Master Universitario En Innovación Digital

ACADEMIC YEAR & SEMESTER

2022/23 - Semester 1

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1. Description

1.1. Subject details

Name of the subject	103000870 - Design Methods For Human-Computer Interaction
No of credits	3 ECTS
Type	Optional
Academic year of 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	2022-23

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	M - 10:00 - 14:00 F - 10:00 - 12:00 Please, 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 Please, 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-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

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

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

RA13 - Understand methods to communicate the design intent

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

* 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 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. In this course we will approach interaction design from the perspective of user-centred design. Interaction design techniques will be presented to explore and refine the behaviour of products and services.

4.2. Syllabus

1. Analysing the context of use
 - 1.1. Observation techniques
 - 1.2. Interrogation techniques
2. Qualitative analysis
 - 2.1. Coding qualitative data
 - 2.2. Validating results from qualitative analysis
3. Interaction design
 - 3.1. Tasks specification
 - 3.2. Navigation maps and User flows
 - 3.3. Scheme layout
4. Low-fidelity prototyping
 - 4.1. Sketching
 - 4.2. Paper low-fidelity prototype
 - 4.3. Software-based low-fidelity prototype

5. Schedule

5.1. Subject schedule*

Week	Classroom activities	Laboratory activities	Distant / On-line	Assessment activities
1				
2	Course presentation Duration: 00:30 1.1. Analysing the context of use Duration: 01:30			
3	1.2. Question formulation Duration: 00:30 1.2. Workshop: Question formulation Duration: 01:30			Definition of interview questions Continuous assessment Not Presential Duration: 03:00
4	1.3. Inquiry in interviews Duration: 00:30 1.3. Workshop: Inquiry in interviews Duration: 01:30			
5	1.4. Contextual Inquiry and observation template Duration: 00:30 1.4. Workshop: Contextual Inquiry and observation template Duration: 01:30			
6	2.1. Coding qualitative data Duration: 02:00			
7	2.1. Workshop: Coding qualitative data Duration: 02:00			
8	2.2. Validation of qualitative analysis Duration: 00:30 2.2. Workshop: Validation of qualitative analysis Duration: 01:30			Qualitative analysis of a context of use Continuous assessment Not Presential Duration: 15:00

9	2. Tutoring: Qualitative analysis - Coding and Validation Duration: 02:00			
10	3. Interaction design Duration: 02:00			Designing the user interaction Continuous assessment Not Presential Duration: 05:00
11	3. Workshop: Interaction design Duration: 02:00			
12	4. Low-fidelity prototypes Duration: 00:30 4.1. Workshop: Sketching Duration: 01:30			
13	4.2. Workshop: Paper low-fidelity prototype Duration: 02:00			
14	4.3. Workshop: Software-based low-fidelity prototype Duration: 02:00			Low-fidelity prototypes Continuous assessment Not Presential Duration: 10:00
15	4. Tutoring: Low-fidelity prototypes Duration: 02:00			
16				
17				Final written exam. 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.

6. Activities and assessment criteria

6.1. Assessment activities

6.1.1. Assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
3	Definition of interview questions		No Presential	03:00	15%	5 / 10	CE-DIPO04 CG03
8	Qualitative analysis of a context of use		No Presential	15:00	25%	5 / 10	CE-DIPO04 CG03
10	Designing the user interaction		No Presential	05:00	10%	5 / 10	CE-DIPO01 CG03
14	Low-fidelity prototypes		No Presential	10:00	20%	5 / 10	CE-DIPO01 CG03
17	Final written exam.		Face-to-face	03:00	30%	5 / 10	CE-DIPO01 CE-DIPO04 CG03

6.1.2. Global examination

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

6.1.3. Referred (re-sit) examination

Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
Final written exam		Face-to-face	03:00	30%	5 / 10	CE-DIPO04 CG03 CE-DIPO01

6.2. Assessment criteria

Subject evaluation system

A **progressive evaluation** is carried out through a project that is broken down into a set of activities that are carried out in a team, and that weigh *70% 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.

The remaining 30% of the final grade will be assessed through 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 the global evaluation (since they coincide in time).

It is required to obtain a minimal grade of 5 in each assessable activity to pass the subject.

Global evaluation

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.

It is required to obtain a minimal grade of 5 in each assessable activity to pass the subject.

Evaluación extraordinaria

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 exam allows to recover the exam carried out in the progressive and global evaluation

The rest of the evaluation activities are not recoverable, and therefore must be carried out during the teaching period.

It is required to obtain a minimal grade of 5 in each assessable activity to pass the subject.

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.

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.