



POLITÉCNICA

INTERNATIONAL
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COORDINATION PROCESS OF
LEARNING ACTIVITIES
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

2021/22 - 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	2021-22

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

RA28 - Apply techniques and processes for prototyping, development and refinement of interactive digital systems in different technological platforms

RA39 - Understand the 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

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

RA12 - Model the user and to design adaptive user interfaces based on the user

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. Navigation map
 - 3.2. 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	Face-to-face classroom activities	Face-to-face laboratory activities	Distant / On-line	Assessment activities
1				
2	Course presentation Duration: 00:30 1.1. Analysing the context of use Duration: 01:30		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		1.2. Question formulation Duration: 00:30 1.2. Workshop: Question formulation Duration: 01:30	Definition of interview questions Continuous assessment and final examination Not Presential Duration: 02:00
4	1.3. Inquiry in interviews Duration: 00:30 1.3. Workshop: Inquiry in interviews Duration: 01:30		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		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		2.1. Coding qualitative data Duration: 02:00	
7	2.1. Workshop: Coding qualitative data Duration: 02:00		2.1. Workshop: Coding qualitative data Duration: 02:00	Codification of an interview Continuous assessment and final examination Not Presential Duration: 03:00
8	2.2. Validation of qualitative analysis Duration: 00:30 2.1. Workshop: Validation of qualitative analysis Duration: 01:30		2.2. Validation of qualitative analysis Duration: 00:30 2.1. Workshop: Validation of qualitative analysis Duration: 01:30	Validation of a qualitative analysis Continuous assessment and final examination Not Presential Duration: 01:00

9	3. Interaction design Duration: 02:00		3. Interaction design Duration: 02:00	
10	4. Low-fidelity prototyping Duration: 00:30 4.1. Workshop: Sketching Duration: 01:30		4. Low-fidelity prototyping Duration: 00:30 4.1. Workshop: Sketching Duration: 01:30	
11	4.2. Workshop: Paper low-fidelity prototype Duration: 02:00		4.2. Workshop: Paper low-fidelity prototype Duration: 02:00	Paper prototype Continuous assessment and final examination Not Presential Duration: 02:00
12	4.3. Workshop: Software-based low-fidelity prototype Duration: 04:00		4.3. Workshop: Software-based low-fidelity prototype Duration: 04:00	Software-based prototype Continuous assessment and final examination Not Presential Duration: 02:00
13				
14				
15				
16				
17				Final 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. Continuous assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
3	Definition of interview questions		No Presential	02:00	15%	5 / 10	CE-DIPO01 CE-DIPO04 CG03
7	Codification of an interview		No Presential	03:00	20%	5 / 10	CE-DIPO01 CE-DIPO04 CG03
8	Validation of a qualitative analysis		No Presential	01:00	5%	5 / 10	CE-DIPO04 CG03 CE-DIPO01
11	Paper prototype		No Presential	02:00	15%	5 / 10	CE-DIPO01 CE-DIPO04 CG03
12	Software-based prototype		No Presential	02:00	15%	5 / 10	CE-DIPO01 CE-DIPO04 CG03
17	Final exam.		Face-to-face	03:00	30%	5 / 10	CE-DIPO01 CE-DIPO04 CG03

6.1.2. Final examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
3	Definition of interview questions		No Presential	02:00	15%	5 / 10	CE-DIPO01 CE-DIPO04 CG03
7	Codification of an interview		No Presential	03:00	20%	5 / 10	CE-DIPO01 CE-DIPO04 CG03
8	Validation of a qualitative analysis		No Presential	01:00	5%	5 / 10	CE-DIPO04 CG03 CE-DIPO01

11	Paper prototype		No Presential	02:00	15%	5 / 10	CE-DIPO01 CE-DIPO04 CG03
12	Software-based prototype		No Presential	02:00	15%	5 / 10	CE-DIPO01 CE-DIPO04 CG03
17	Final 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
Written assignment		Face-to-face	03:00	100%	5 / 10	CE-DIPO01 CE-DIPO04 CG03

6.2. Assessment criteria

The course will be assessed based on two aspects:

1. **Work in group.** Students will work in groups during the workshops of the subject. Then, groups will be asked to submit their results through Moodle. In these activities, the evaluation criteria will include active participation during the workshops, ability to debate and answer questions, ability to acquire and understand concepts, and quality of the results. This part weights, in total, 70% of the final grade.
2. **Individual work.** Students will individually take a written exam dealing with the contents studied in the subject. This part weights, in total, 30% of the final grade.

As 70% of the final grade is based on face-to-face workshops, "Final examination" will also have to submit the results of the workshops, even if they do not assist to them.

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. 3ª Edición. John Wiley & Sons, 2011.
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.
Usability Engineering	Bibliography	Jakob Nielsen. AP Professional, 1993.

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: All activities and classes are planned to be face-to-face. However, if the sanitary conditions worsen, all activities and classes will change into online mode, without the need to modify this learning guide.

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