



POLITÉCNICA

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E.T.S. de Ingenieros
Informáticos

ANX-PR/CL/001-01

LEARNING GUIDE

SUBJECT

103000543 - Interaction design

DEGREE PROGRAMME

10AM - Master Universitario en Ingeniería del Software

ACADEMIC YEAR & SEMESTER

2017/18 - Semester 2

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1. Description

1.1. Subject details

Name of the subject	103000543 - Interaction design
No of credits	6 ECTS
Type	Optional
Academic year of the programme	First year
Semester of tuition	Semester 2
Tuition period	February-June
Tuition languages	English
Degree programme	10AM - Master Universitario en Ingeniería del Software
Centre	Escuela Técnica Superior de Ingenieros Informaticos
Academic year	2017-18

2. Faculty

2.1. Faculty members with subject teaching role

Name and surname	Office/Room	Email	Tutoring hours *
Elena Villalba Mora	5110	elena.villalba@upm.es	M - 11:00 - 14:00 W - 09:00 - 11:00 W - 13:00 - 14:00 It is advisable to arrange a tutoring appointment by email in advance.

Xavier Ferre Grau (Subject coordinator)	3335	xavier.ferre@upm.es	W - 10:00 - 11:00 W - 13:00 - 14:00 Th - 10:00 - 14:00 It is advisable to arrange a tutoring appointment by email in advance.
Cristian Moral Martos	5110	cristian.moral@upm.es	M - 11:00 - 14:00 W - 09:00 - 11:00 W - 13:00 - 14:00 It is advisable to arrange a tutoring appointment by email in advance.

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

2.3. External faculty

Name and surname	Email	Institution
Rodrigo Pérez Rodríguez	rprodrigo@salud.madrid.org	Fundación para la Investigación Biomédica del Hospital Universitario de Getafe

3. Prior knowledge recommended to take the subject

3.1. Recommended (passed) subjects

El plan de estudios Master Universitario en Ingeniería del Software no tiene definidas asignaturas previas recomendadas para esta asignatura.

3.2. Other recommended learning outcomes

- Basic knowledge on Human-Centered Design and the Human-Computer Interaction discipline

4. Skills and learning outcomes *

4.1. Skills to be learned

CE13 - Tener una visión de los distintos aspectos específicos y emergentes de la ingeniería del software, y profundizar en algunos de ellos

CE14 - Comprender lo que pueden y no pueden conseguir las prácticas actuales de ingeniería del software, y sus limitaciones y su posible futura evolución.

4.2. Learning outcomes

RA17 - Given a specific software engineering field, the student assesses and designs the most appropriate solution to solve some of its problems, presenting the technical difficulties and applicability limitations.

RA18 - Given a real problem, the student chooses the most appropriate software engineering solution, analyzing the solution feasibility, what can and cannot be achieved through the current status of the chosen solution, and what it can advance in the future.

RA19 - The student explains what are the software engineering limits and frontiers, and the base for new trends and developments, and about the advanced issues and their application.

* 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.

5. Brief description of the subject and syllabus

5.1. Brief description of the subject

The course addresses the topic of how to design the interactive part of a software system as part of the overall software development process to achieve a good level of usability and User eXperience (UX). Some knowledge on the Human-Computer Interaction field and User-Centered approach to software development is a requirement for the course. Advanced interaction design topics will be discussed in the classroom, giving special attention to novel interactive systems like mobile applications.

The students will extend their knowledge on each topic carrying out information research and highlighting the aspects of higher interest through class presentations and an individual blog. Team assignments will consist on applying the discussed interaction design topics to a case study. Each team will be composed of 3 students.

The main objective of the course is for the student to be able to identify what HCI methods can offer in a software development effort, in order to improve the usability and UX of the resulting software product.

5.2. Syllabus

1. Interaction design as part of the software development process
 - 1.1. Interaction design, usability, HCI and User-Centered Design (UCD)
 - 1.2. UCD process characteristics
 - 1.3. Cost-justifying usability
2. Understanding the user and the context of use
 - 2.1. Qualitative methods
 - 2.2. Specification of the context of use
3. Envisioning design
 - 3.1. Design
 - 3.2. Detailed interaction design
 - 3.3. Visual design
4. IoT (Internet of Things) and Ubiquitous Computing
5. Prototyping

6. UX (User eXperience)
7. Usability and UX evaluation
 - 7.1. Usability evaluation
 - 7.2. Interaction design guidelines
8. Specific interaction paradigms
 - 8.1. Mobile apps
 - 8.2. e-Health systems
9. Integration of usability into the software development process

6. Schedule

6.1. Subject schedule*

Week	Face-to-face classroom activities	Face-to-face laboratory activities	Other face-to-face activities	Assessment activities
1	Theory classes: Ch. 1 Duration: 03:00 Lecture			Participation showing critical ability in the classroom or in the virtual forum Other assessment Continuous assessment Duration: 00:00
2	Theory classes: Ch. 1 Duration: 03:00 Lecture		Team tutoring Duration: 02:00 Additional activities	Blog entry or class individual assignment Individual work Continuous assessment Duration: 00:00 Participation showing critical ability in the classroom or in the virtual forum Other assessment Continuous assessment Duration: 00:00
3	Theory classes: Ch. 2 Duration: 00:00 Lecture		Team tutoring Duration: 02:30 Additional activities	Blog entry or class individual assignment Individual work Continuous assessment Duration: 00:00 Participation showing critical ability in the classroom or in the virtual forum Other assessment Continuous assessment Duration: 00:00
4	Theory classes: Ch. 3 Duration: 03:00 Lecture		Team tutoring Duration: 02:30 Additional activities	Blog entry or class individual assignment Individual work Continuous assessment Duration: 00:00 Participation showing critical ability in the classroom or in the virtual forum Other assessment Continuous assessment Duration: 00:00
5	Theory classes: Ch. 3 Duration: 03:00 Lecture		Team tutoring Duration: 02:30 Additional activities	Blog entry or class individual assignment Individual work Continuous assessment Duration: 00:00 Participation showing critical ability in the classroom or in the virtual forum Other assessment Continuous assessment Duration: 00:00

6	<p>Theory classes: Ch. 4 Duration: 03:00 Lecture</p>		<p>Team tutoring Duration: 02:30 Additional activities</p>	<p>Blog entry or class individual assignment Individual work Continuous assessment Duration: 00:00</p> <p>Participation showing critical ability in the classroom or in the virtual forum Other assessment Continuous assessment Duration: 00:00</p>
7			<p>Team tutoring Duration: 04:00 Additional activities</p>	<p>Blog entry or class individual assignment Individual work Continuous assessment Duration: 00:00</p> <p>Team presentation Group presentation Continuous assessment and final examination Duration: 03:00</p> <p>Participation showing critical ability in the classroom or in the virtual forum Other assessment Continuous assessment Duration: 00:00</p>
8	<p>Theory classes: Ch. 4 Duration: 03:00 Lecture</p>		<p>Team tutoring Duration: 02:30 Additional activities</p>	<p>Blog entry or class individual assignment Individual work Continuous assessment Duration: 00:00</p> <p>Participation showing critical ability in the classroom or in the virtual forum Other assessment Continuous assessment Duration: 00:00</p>
9	<p>Theory classes: Ch. 5 Duration: 03:00 Lecture</p>		<p>Team tutoring Duration: 02:30 Additional activities</p>	<p>Blog entry or class individual assignment Individual work Continuous assessment Duration: 00:00</p> <p>Participation showing critical ability in the classroom or in the virtual forum Other assessment Continuous assessment Duration: 00:00</p>
10			<p>Team tutoring Duration: 04:00 Additional activities</p>	<p>Blog entry or class individual assignment Individual work Continuous assessment Duration: 00:00</p> <p>Team presentation Group presentation Continuous assessment and final examination Duration: 03:00</p> <p>Participation showing critical ability in the classroom or in the virtual forum Other assessment Continuous assessment Duration: 00:00</p>

11	Theory classes: Ch. 6. Duration: 03:00 Lecture		Team tutoring Duration: 02:30 Additional activities	Blog entry or class individual assignment Individual work Continuous assessment Duration: 00:00 Participation showing critical ability in the classroom or in the virtual forum Other assessment Continuous assessment Duration: 00:00
12	Theory classes: Ch. 7 Duration: 03:00 Lecture		Team tutoring Duration: 02:30 Additional activities	Participation showing critical ability in the classroom or in the virtual forum Other assessment Continuous assessment Duration: 00:00
13	Theory classes: Ch. 8 Duration: 03:00 Lecture		Team tutoring Duration: 02:30 Additional activities	Participation showing critical ability in the classroom or in the virtual forum Other assessment Continuous assessment Duration: 00:00
14	Theory classes: Ch. 8 Duration: 03:00 Cooperative activities		Team tutoring Duration: 02:30 Additional activities	Participation showing critical ability in the classroom or in the virtual forum Other assessment Continuous assessment Duration: 00:00
15			Team tutoring Duration: 04:00 Additional activities	Team presentation Group presentation Continuous assessment and final examination Duration: 03:00 Participation showing critical ability in the classroom or in the virtual forum Other assessment Continuous assessment Duration: 00:00
16	Theory classes: Ch. 9 Duration: 03:00 Lecture			Participation showing critical ability in the classroom or in the virtual forum Other assessment Continuous assessment Duration: 00:00
17				Final assignment Individual work Continuous assessment and final examination Duration: 00:00 Exam Written test Final examination Duration: 00:00

The independent study hours are training activities during which students should spend time on individual study or individual assignments.

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 subject schedule is based on a previous theoretical planning of the subject plan and might go through experience some unexpected changes along throughout the academic year.

7. Activities and assessment criteria

7.1. Assessment activities

7.1.1. Continuous assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
1	Participation showing critical ability in the classroom or in the virtual forum	Other assessment	No Presential	00:00	.63%	/ 10	
2	Blog entry or class individual assignment	Individual work	No Presential	00:00	3%	/ 10	
2	Participation showing critical ability in the classroom or in the virtual forum	Other assessment	No Presential	00:00	.63%	/ 10	
3	Blog entry or class individual assignment	Individual work	No Presential	00:00	3%	/ 10	
3	Participation showing critical ability in the classroom or in the virtual forum	Other assessment	No Presential	00:00	.63%	/ 10	
4	Blog entry or class individual assignment	Individual work	No Presential	00:00	3%	/ 10	
4	Participation showing critical ability in the classroom or in the virtual forum	Other assessment	No Presential	00:00	.62%	/ 10	
5	Blog entry or class individual assignment	Individual work	No Presential	00:00	3%	/ 10	
5	Participation showing critical ability in the classroom or in the virtual forum	Other assessment	No Presential	00:00	.63%	/ 10	
6	Blog entry or class individual assignment	Individual work	No Presential	00:00	3%	/ 10	
6	Participation showing critical ability in the classroom or in the virtual forum	Other assessment	No Presential	00:00	.63%	/ 10	
7	Blog entry or class individual assignment	Individual work	No Presential	00:00	3%	/ 10	
7	Team presentation	Group presentation	Face-to-face	03:00	15%	/ 10	

7	Participation showing critical ability in the classroom or in the virtual forum	Other assessment	No Presential	00:00	.63%	/ 10	
8	Blog entry or class individual assignment	Individual work	No Presential	00:00	3%	/ 10	
8	Participation showing critical ability in the classroom or in the virtual forum	Other assessment	No Presential	00:00	.63%	/ 10	
9	Blog entry or class individual assignment	Individual work	No Presential	00:00	3%	/ 10	
9	Participation showing critical ability in the classroom or in the virtual forum	Other assessment	No Presential	00:00	.63%	/ 10	
10	Blog entry or class individual assignment	Individual work	No Presential	00:00	3%	/ 10	
10	Team presentation	Group presentation	Face-to-face	03:00	15%	/ 10	
10	Participation showing critical ability in the classroom or in the virtual forum	Other assessment	No Presential	00:00	.62%	/ 10	
11	Blog entry or class individual assignment	Individual work	No Presential	00:00	3%	/ 10	
11	Participation showing critical ability in the classroom or in the virtual forum	Other assessment	No Presential	00:00	.62%	/ 10	
12	Participation showing critical ability in the classroom or in the virtual forum	Other assessment	No Presential	00:00	.62%	/ 10	
13	Participation showing critical ability in the classroom or in the virtual forum	Other assessment	No Presential	00:00	.62%	/ 10	
14	Participation showing critical ability in the classroom or in the virtual forum	Other assessment	No Presential	00:00	.62%	/ 10	
15	Team presentation	Group presentation	Face-to-face	03:00	15%	/ 10	
15	Participation showing critical ability in the classroom or in the virtual forum	Other assessment	No Presential	00:00	.62%	/ 10	
16	Participation showing critical ability in the classroom or in the virtual forum	Other assessment	No Presential	00:00	.62%	/ 10	
17	Final assignment	Individual work	No Presential	00:00	15%	/ 10	CE13 CE14

7.1.2. Final examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
7	Team presentation	Group presentation	Face-to-face	03:00	15%	/ 10	
10	Team presentation	Group presentation	Face-to-face	03:00	15%	/ 10	
15	Team presentation	Group presentation	Face-to-face	03:00	15%	/ 10	
17	Final assignment	Individual work	No Presential	00:00	15%	/ 10	CE13 CE14
17	Exam	Written test	Face-to-face	00:00	40%	/ 10	CE13 CE14

7.1.3. Referred (re-sit) examination

Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
Exam	Written test	Face-to-face	02:00	85%	/ 10	CE13 CE14
Final assignment	Individual work	Face-to-face	02:00	15%	/ 10	CE13 CE14

7.2. Assessment criteria

The work in the course is mainly based on the reflections and practical application of the concepts dealt with in the weekly lectures. Some assignments are individual, while some others are done in teams of 3 students. Regular work and attendance to classes is recommended for an adequate elaboration of the individual weekly assignments.

Grading for the course will be composed by the combination of the following activities in the stated percentage:

- How students show their understanding and critical analysis ability, through the written impressions on every week subject through the individual blog (30%) and through participation (10%), both in the classroom and in the moodle virtual forum.
- Team assignments and their presentation in the classroom will show how students have applied the methods discussed, and that they have understood the main principles behind the subjects studied. (45%)
- Individual final assignment, where the student will show his/her understanding and critical analysis ability about the course subjects from a holistic point of view (15%).

Cheating and plagiarism will be severely punished, according to UPM reglamentation.

8. Teaching resources

8.1. Teaching resources for the subject

Name	Type	Notes
Interaction Design: Beyond Human-Computer Interaction. Helen Sharp, Yvonne Rogers, Jenny Preece. John Wiley & Sons, 2007.	Bibliography	
Designing the User Interface. Strategies for Effective Human-Computer Interaction. 4th ed. Ben Shneiderman, Catherine Plaisant. Addison Wesley, 2005.	Bibliography	
Designing Visual Interfaces. Communication Oriented Techniques. Kevin Mullet, Darrell Sano. Prentice Hall, 1994.	Bibliography	
Mobile User Experience: Patterns to Make Sense of it All. Adrián Mendoza. Morgan Kaufmann, 2013.	Bibliography	
Usability Planner	Web resource	http://usabilityplanner.org/v2/
The Design of Everyday Things. Donald Norman. Basic Books, 2002	Bibliography	
The Laws of Simplicity (Simplicity: Design, Technology, Business, Life). John Maeda. MIT Press, 2006.	Bibliography	