



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

103000882 - Assistive Products

DEGREE PROGRAMME

10AZ - Master Universitario en Innovación Digital

ACADEMIC YEAR & SEMESTER

2019/20 - Semester 1

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1. Description

1.1. Subject details

Name of the subject	103000882 - Assistive Products
No of credits	4.5 ECTS
Type	Optional
Academic year of the programme	Second year
Semester of tuition	Semester 3
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	2019-20

2. Faculty

2.1. Faculty members with subject teaching role

Name and surname	Office/Room	Email	Tutoring hours *
Jose Luis Fuertes Castro	4307	joseluis.fuertes@upm.es	M - 12:00 - 13:00 W - 16:30 - 19:00 Th - 16:30 - 19:00 Please confirm appointment via email
Loic Antonio Martinez Normand (Subject coordinator)	3352	loic.mnormand@upm.es	Tu - 13:00 - 15:00 Th - 13:00 - 15:00 F - 13:00 - 15:00 Please confirm appointment via

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

3. Prior knowledge recommended to take the subject

3.1. Recommended (passed) subjects

- Programming Of User Interfaces
- Evaluation Of Interactive Systems
- Introduction To Human-computer Interaction

3.2. Other recommended learning outcomes

The subject - other recommended learning outcomes, are not defined.

4. Skills and learning outcomes *

4.1. Skills to be learned

CB06 - Poseer y comprender conocimientos que aporten una base u oportunidad de ser originales en el desarrollo y/o aplicación de ideas, a menudo en un contexto de investigación

CB07 - Que los estudiantes sepan aplicar los conocimientos adquiridos y su capacidad de resolución de problemas en entornos nuevos o poco conocidos dentro de contextos más amplios (o multidisciplinares) relacionados con su área de estudio

CB08 - Que los estudiantes sean capaces de integrar conocimientos y enfrentarse a la complejidad de formular juicios a partir de una información que, siendo incompleta o limitada, incluya reflexiones sobre las responsabilidades sociales y éticas vinculadas a la aplicación de sus conocimientos y juicios

CB09 - Que los estudiantes sepan comunicar sus conclusiones y los conocimientos y razones últimas que las sustentan a públicos especializados y no especializados de un modo claro y sin ambigüedades

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

CE-DIPO02 - Capacidad para evaluar la interacción persona-ordenador de productos y servicios de alto valor innovador

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

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

CG06 - Capacidad para gestionar la información.

4.2. Learning outcomes

RA26 - Evaluate and implement systems that use accessibility APIs

RA25 - Understand the APIs for interoperability between IT and Assistive Products

RA22 - Understand the concept and types of assistive products

RA20 - Evaluate the usability and accessibility of prototypes

* 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

An **assistive product** is any product (including devices, equipment, instruments and software), especially produced or generally available, used by or for persons with disability for participation; to protect, support, train, measure or substitute for body functions, structures and activities; or to prevent impairments, activity limitations or participation restrictions. This course will first describe the assistive products that are normally used by persons with disabilities to use ICT products and services. It will then explain how ICT can interoperate with assistive products through the use of accessibility APIs of operating systems

5.2. Syllabus

1. Assistive products
 - 1.1. Assistive products: concept
 - 1.2. Assistive products: classification
2. Interoperability between information technology and assistive products
 - 2.1. Interoperability APIs
 - 2.2. Evaluation of the use of interoperability APIs
 - 2.3. Programming user interfaces with interoperability APIs

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	Course presentation. Introduction to Assistive Products. Schedule of evaluation activities Duration: 02:00			
2	Inverted class: classification of assistive products Duration: 02:00			Active participation in inverted class Continuous assessment Duration: 00:30
3	Workshop: using built-in mobile assistive products Duration: 02:00			Active participation in workshop Continuous assessment Duration: 00:30
4	Seminar: working on individual exercise on one assistive product Duration: 02:30			
5				Presentation of one Assistive Product Continuous assessment Duration: 02:30
6	Inverted class: IT-AT Interoperability (ISO 13066-1) Duration: 02:00			Active participation in inverted class Continuous assessment Duration: 00:30
7	Seminar: working on analysing one Accessibility API Duration: 02:30			
8				Presentation of one Accessibility API Continuous assessment Duration: 02:30
9	Workshop: testing the use of Accessibility API Duration: 02:00			Active participation in workshop Continuous assessment Duration: 00:30
10	Seminar: working on exercise of testing use of Accessibility API Duration: 02:30			

11				Presentation of Testing the use of Accessibility API Continuous assessment Duration: 02:30
12	Workshop: using one Accessibility API Duration: 02:00			Active participation in workshop Continuous assessment Duration: 00:30
13	Seminar: working on programming with Accessibility API Duration: 02:30			
14	Seminar: working on programming with Accessibility API Duration: 02:30			
15				Presentation of programming with Accessibility API Continuous assessment Duration: 02:30 Program developed using accessibility API Continuous assessment Duration: 00:00
16				Exam Final examination Duration: 02:00
17				

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
2	Active participation in inverted class		Face-to-face	00:30	5%	/ 10	CG03 CG06
3	Active participation in workshop		Face-to-face	00:30	5%	/ 10	CB06
5	Presentation of one Assistive Product		Face-to-face	02:30	15%	/ 10	CB09
6	Active participation in inverted class		Face-to-face	00:30	5%	/ 10	CG03 CG06
8	Presentation of one Accessibility API		Face-to-face	02:30	15%	/ 10	CB09 CG03
9	Active participation in workshop		Face-to-face	00:30	5%	/ 10	CB06
11	Presentation of Testing the use of Accessibility API		Face-to-face	02:30	15%	/ 10	CB09 CG03
12	Active participation in workshop		Face-to-face	00:30	5%	/ 10	CB06
15	Presentation of programming with Accessibility API		Face-to-face	02:30	10%	/ 10	CG03 CB09
15	Program developed using accessibility API		No Presential	00:00	20%	/ 10	CB06

7.1.2. Final examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
16	Exam		Face-to-face	02:00	100%	/ 10	CG03 CB06 CG06 CB09

7.1.3. Referred (re-sit) examination

Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
Exam (extraordinary - July)		Face-to-face	02:00	100%	/ 10	CB09 CG03 CB06 CG06

7.2. Assessment criteria

It is strongly recommended to follow the continuous evaluation system, that grades the active participation of the student during the semester in different types of activities: cooperative learning, inverted classroom, individual presentations and individual exercises. This continuous evaluation system implies attending all the sessions. In addition, attendance to the visits is mandatory.

If the student is unable to follow the continuous evaluation system, then he or she must perform a written exam that covers all the contents of the course.

8. Teaching resources

8.1. Teaching resources for the subject

Name	Type	Notes
ISO 9999:2016 Assistive products for persons with disability -- Classification and terminology	Bibliography	International Standard that defines assistive products and provides a classification
ISO/IEC 13066-1:2011 Information technology -- Interoperability with assistive technology (AT) -- Part 1: Requirements and recommendations for interoperability	Bibliography	International Standard defining the interoperability APIs between IT and Assistive Products

<p>ISO/IEC TR 13066-2:2016 Information technology -- Interoperability with assistive technology (AT) -- Part 2: Windows accessibility application programming interface (API)</p>	<p>Bibliography</p>	<p>Technical Report describing the accessibility API of Microsoft Windows
</p>
<p>ISO/IEC TR 13066-3:2012 Information technology -- Interoperability with assistive technology (AT) -- Part 3: IAccessible2 accessibility application programming interface (API)</p>	<p>Bibliography</p>	<p>Technical Report describing the iAccessible2 accessibility API
</p>
<p>ISO/IEC TR 13066-4:2015 Information technology -- Interoperability with assistive technology (AT) -- Part 4: Linux/UNIX graphical environments accessibility API</p>	<p>Bibliography</p>	<p>Technical Report describing the accessibility API of Linux/UNIX</p>
<p>ISO/IEC TR 13066-6:2014 Information technology -- Interoperability with Assistive Technology (AT) -- Part 6: Java accessibility application programming interface (API)</p>	<p>Bibliography</p>	<p>Tecnical Report describing the Java accessibility API</p>
<p>Accessible Rich Internet Applications (WAI-ARIA) 1.1</p>	<p>Web resource</p>	<p>W3C Recommendation 14 December 2017
 https://www.w3.org/TR/wai-aria/</p>

9. Other information

9.1. Other information about the subject

Human-Computer Interaction and Design. Specific Skills:

- CE-DIPO03 Ability to make connections between the wishes and needs of the consumer or client and what technology can offer

External visits

The calendar of external visits can change, due to agenda restrictions of the entities to be visited.