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
Index

Learning guide

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1. Description

1.1. Subject details

<table>
<thead>
<tr>
<th>Name of the subject</th>
<th>103000882 - Assistive Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of credits</td>
<td>4.5 ECTS</td>
</tr>
<tr>
<td>Type</td>
<td>Optional</td>
</tr>
<tr>
<td>Academic year of the programme</td>
<td>Second year</td>
</tr>
<tr>
<td>Semester of tuition</td>
<td>Semester 3</td>
</tr>
<tr>
<td>Tuition period</td>
<td>September-January</td>
</tr>
<tr>
<td>Tuition languages</td>
<td>English</td>
</tr>
<tr>
<td>Degree programme</td>
<td>10AZ - Master Universitario en Innovación Digital</td>
</tr>
<tr>
<td>Centre</td>
<td>10 - Escuela Tecnica Superior de Ingenieros Informaticos</td>
</tr>
<tr>
<td>Academic year</td>
<td>2019-20</td>
</tr>
</tbody>
</table>

2. Faculty

2.1. Faculty members with subject teaching role

<table>
<thead>
<tr>
<th>Name and surname</th>
<th>Office/Room</th>
<th>Email</th>
<th>Tutoring hours *</th>
</tr>
</thead>
</table>
| 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 |
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*

<table>
<thead>
<tr>
<th>Week</th>
<th>Face-to-face classroom activities</th>
<th>Face-to-face laboratory activities</th>
<th>Other face-to-face activities</th>
<th>Assessment activities</th>
</tr>
</thead>
</table>
| 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 |
| 3    | Workshop: using built-in mobile assistive products  
      Duration: 02:00 |                                  |                              | Active participation in workshop |
| 4    | Seminar: working on individual exercise on one assistive product  
      Duration: 02:30 |                                  |                              | Continuous assessment  
      Duration: 00:30 |
| 5    |                                  |                                  |                              | Presentation of one Assistive Product |
| 6    | Inverted class: IT-AT Interoperability (ISO 13066-1)  
      Duration: 02:00 |                                  |                              | Active participation in inverted class |
| 7    | Seminar: working on analysing one Accessibility API  
      Duration: 02:30 |                                  |                              | Continuous assessment  
      Duration: 00:30 |
| 8    |                                  |                                  |                              | Continuous assessment  
      Duration: 02:30 |
| 9    | Workshop: testing the use of Accessibility API  
      Duration: 02:00 |                                  |                              | Active participation in workshop |
| 10   | Seminar: working on exercise of testing use of Accessibility API  
      Duration: 02:30 |                                  |                              | Continuous assessment  
      Duration: 00:30 |
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>
| 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 some unexpected changes along throughout the academic year.
### 7. Activities and assessment criteria

#### 7.1. Assessment activities

##### 7.1.1. Continuous assessment

<table>
<thead>
<tr>
<th>Week</th>
<th>Description</th>
<th>Modality</th>
<th>Type</th>
<th>Duration</th>
<th>Weight</th>
<th>Minimum grade</th>
<th>Evaluated skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Active participation in inverted class</td>
<td>Face-to-face</td>
<td>00:30</td>
<td>5%</td>
<td>/ 10</td>
<td>CG03 CG06</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Active participation in workshop</td>
<td>Face-to-face</td>
<td>00:30</td>
<td>5%</td>
<td>/ 10</td>
<td>CB06</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Presentation of one Assistive Product</td>
<td>Face-to-face</td>
<td>02:30</td>
<td>15%</td>
<td>/ 10</td>
<td>CB09</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Active participation in inverted class</td>
<td>Face-to-face</td>
<td>00:30</td>
<td>5%</td>
<td>/ 10</td>
<td>CG03 CG06</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Presentation of one Accessibility API</td>
<td>Face-to-face</td>
<td>02:30</td>
<td>15%</td>
<td>/ 10</td>
<td>CB09 CG03</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Active participation in workshop</td>
<td>Face-to-face</td>
<td>00:30</td>
<td>5%</td>
<td>/ 10</td>
<td>CB06</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Presentation of Testing the use of Accessibility API</td>
<td>Face-to-face</td>
<td>02:30</td>
<td>15%</td>
<td>/ 10</td>
<td>CB09 CG03</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Active participation in workshop</td>
<td>Face-to-face</td>
<td>00:30</td>
<td>5%</td>
<td>/ 10</td>
<td>CB06</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Presentation of programming with Accessibility API</td>
<td>Face-to-face</td>
<td>02:30</td>
<td>10%</td>
<td>/ 10</td>
<td>CG03 CB09</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Program developed using accessibility API</td>
<td>No Presential</td>
<td>00:00</td>
<td>20%</td>
<td>/ 10</td>
<td>CB06</td>
<td></td>
</tr>
</tbody>
</table>

##### 7.1.2. Final examination

<table>
<thead>
<tr>
<th>Week</th>
<th>Description</th>
<th>Modality</th>
<th>Type</th>
<th>Duration</th>
<th>Weight</th>
<th>Minimum grade</th>
<th>Evaluated skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Exam</td>
<td>Face-to-face</td>
<td>02:00</td>
<td>100%</td>
<td>/ 10</td>
<td>CG03 CB06 CG06 CB09</td>
<td></td>
</tr>
</tbody>
</table>

##### 7.1.3. Referred (re-sit) examination
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

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISO 9999:2016 Assistive products for persons with disability -- Classification and terminology</td>
<td>Bibliography</td>
<td>International Standard that defines assistive products and provides a classification</td>
</tr>
<tr>
<td>ISO/IEC 13066-1:2011 Information technology -- Interoperability with assistive technology (AT) -- Part 1: Requirements and recommendations for interoperability</td>
<td>Bibliography</td>
<td>International Standard defining the interoperability APIs between IT and Assistive Products</td>
</tr>
</tbody>
</table>
| Accessible Rich Internet Applications (WAI-ARIA) 1.1 | Web resource | W3C Recommendation 14 December 2017<br />https://www.w3.org/TR/wai-aria/
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.