INTERNATIONAL
CAMPUS OF
EXCELLENCE

POLITÉCNICA

E.T.S. de Ingenieros
Informaticos

ANX-PR/CL/001-01

LEARNING GUIDE

SUBJECT

103000880 - Accessible Design Of Interactive Systems

DEGREE PROGRAMME

10AZ - Master Universitario Innovación Digital

ACADEMIC YEAR & SEMESTER

2019/20 - Semester 1

Index

Learning guide

PR/CL/001
COORDINATION PROCESS OF
LEARNING ACTIVITIES

ANX-PR/CL/001-01
LEARNING GUIDE

E.T.S. de Ingenieros Informaticos

1. Description

1.1. Subject details

Name of the subject	103000880 - Accessible Design Of Interactive Systems
No of credits	4.5 ECTS
Type	Optional
Academic year ot the programme	Second year
Semester of tuition	Semester 3
Tuition period	September-January
Tuition languages	English
Degree programme	10AZ - Master Universitario 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 (Subject coordinator)	D4307	joseluis.fuertes@upm.es	M - 12:00 - 13:00 W - 16:30 - 19:00 Th - 16:30 - 19:00
Loic Antonio Martinez Normand	D3352	loic.mnormand@upm.es	Tu - 13:00 - 15:00 Th - 13:00 - 15:00 F - 13:00 - 15:00 Please confirm appointment via 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

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

CG02 - Que los estudiantes desarrollen la autonomía suficiente para participar en proyectos de investigación y colaboraciones científicas o tecnológicas dentro su ámbito temático explorando y generando nuevas ideas sistemáticamente, en contextos interdisciplinares y, en su caso, con una alta componente de transferencia del conocimiento.

3.2. Learning outcomes

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

RA36 - Understand the diversity of user requirements and the characteristics of accessibility

RA20 - Evaluate the usability and accessibility of prototypes

RA22 - Understand the concept and types of assistive products

* 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 a specialization about the accessibility of information and communication technologies (ICT) for persons with functional diversity (disability). It is mainly focused on current research issues in the field.

The course will start with an introduction to basic ICT accessibiltiy concepts: functional diversity, design for all, legislation, standards and the assessment of the accessibility degree of ICT products and services.

After that, the students will work on current challenges in the field, such as:

- Methods, techniques and tools for accessibility evaluation
- Applying user centred design and design for all in development methodologies
- New ICT accessibility standards

4.2. Syllabus

1. Functional diversity, accessibility and design for all

    1.1. Introduction

    1.2. Functional diversity

    1.3. Principles of accessible design

2. ICT accessibility standards

    2.1. Introduction to standards

    2.2. Relevant ICT accessibility standards

    2.3. Deeper study of one accessibility standard

    2.4. Conformity assessment

3. State of the art in ICT accessibility

    3.1. State of the art and future trends

4. Human-centred design

    4.1. Introduction to human-centred design

PR/CL/001
COORDINATION PROCESS OF
LEARNING ACTIVITIES

ANX-PR/CL/001-01
LEARNING GUIDE

E.T.S. de Ingenieros
Informaticos

5. Schedule

5.1. Subject schedule*

Week	Face-to-face classroom activities	Face-to-face laboratory activities	Other face-to-face activities	Assessment activities
1	**Course introduction** Duration: 00:20 **Chapter 1: 1.1- Introduction** Duration: 01:40			
2	**Chapter 1: 1.2- Functional diversity** Duration: 00:50			**Personas evaluation** Continuous assessment Duration: 00:10 **Individual presentation of personas** Continuous assessment Duration: 01:00
3	**Chapter 1: 1.3- Principles of accessible design** Duration: 00:30			
4	**Chapter 1: 1.3- Principles of accessible design** Duration: 00:45 **Chapter 2: 2.1- Introduction to standards** Duration: 00:20			**Individual presentation of principles of Design for All** Continuous assessment Duration: 00:45 **Desgin for All evaluation** Continuous assessment Duration: 00:10
5	**Standards overview discussion** Duration: 00:45 **Chapter 2: 2.2- Relevant ICT standards** Duration: 00:45 **Explanation of exercise 1** Duration: 00:15			**Standard overview evaluation** Continuous assessment Duration: 00:15
6	**Chapter 2: 2.3- Deeper study of one accessibility standard** Duration: 01:30			**Jigsaw evaluation (discussion)** Continuous assessment and final examination Duration: 00:30

PR/CL/001
COORDINATION PROCESS OF
LEARNING ACTIVITIES

ANX-PR/CL/001-01
LEARNING GUIDE

E.T.S. de Ingenieros
Informaticos

7	**Explanation of exercise 2** Duration: 00:45 **Chapter 2: 2.3- Deeper study of one accessibility standard** Duration: 00:30		**classroom tutoring. Exercise 1** Duration: 00:30	**Test 1** Continuous assessment Duration: 01:00 **One accessibility standard evaluation** Continuous assessment Duration: 00:15
8	**Chapter 2: 2.3- Deeper study of one accessibility standard** Duration: 01:30			**Delivery of exercise 1** Continuous assessment and final examination Duration: 00:00 **Jigsaw evaluation (discussion)** Continuous assessment and final examination Duration: 00:30
9	**Chapter 2: 2.4- Conformity assesment** Duration: 01:30 **Classroom tutoring. Exercise 2** Duration: 00:30			
10	**Chapter 3: 3.1- State of the art and future trends** Duration: 01:30 **Explanation of exercise 3** Duration: 00:20			**Delivery of exercise 2** Continuous assessment and final examination Duration: 00:00 **State of the art in ICT accessibility evaluation** Continuous assessment Duration: 00:10
11	**Collective revision of exercise 2** Duration: 02:00			
12	**Chapter 4: 4.1- Human-centred design** Duration: 01:45			**Human-centred design evaluation** Continuous assessment Duration: 00:15
13			**Classroom tutoring. Exercise 3** Duration: 02:00	
14				**Delivery of exercise 3** Continuous assessment Duration: 00:00 **Delivery of exercise 3** Final examination Duration: 00:00

15				**Classroom discussion of exercise 3** Continuous assessment Duration: 02:00
16				
17				**Test 1** Final examination Duration: 01:00 **Test 2** Continuous assessment and final examination Duration: 00:30

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 theorical planning of the subject plan and might go to through experience some unexpected changes along throughout the academic year.

6. Activities and assessment criteria

6.1. Assessment activities

6.1.1. Continuous assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
2	Personas evaluation		Face-to-face	00:10	1%	/ 10	CB08
2	Individual presentation of personas		Face-to-face	01:00	2%	/ 10	CB08
4	Individual presentation of principles of Design for All		Face-to-face	00:45	2%	/ 10	CB08
4	Desgin for All evaluation		Face-to-face	00:10	1%	/ 10	CB08
5	Standard overview evaluation		Face-to-face	00:15	1%	/ 10	CB08
6	Jigsaw evaluation (discussion)		Face-to-face	00:30	5%	/ 10	CG02
7	Test 1		No Presential	01:00	10%	/ 10	CB08
7	One accessibility standard evaluation		Face-to-face	00:15	1%	/ 10	CG02
8	Delivery of exercise 1		No Presential	00:00	15%	/ 10	CB08
8	Jigsaw evaluation (discussion)		Face-to-face	00:30	5%	/ 10	CG02
10	Delivery of exercise 2		No Presential	00:00	20%	/ 10	CB08
10	State of the art in ICT accessibility evaluation		Face-to-face	00:10	1%	/ 10	CG02
12	Human-centred design evaluation		Face-to-face	00:15	1%	/ 10	CB08
14	Delivery of exercise 3		No Presential	00:00	20%	/ 10	CG02 CB08
15	Classroom discussion of exercise 3		Face-to-face	02:00	5%	/ 10	CG02 CB08
17	Test 2		Face-to-face	00:30	10%	/ 10	CB08

6.1.2. Final examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
6	Jigsaw evaluation (discussion)		Face-to-face	00:30	5%	/ 10	CG02
8	Delivery of exercise 1		No Presential	00:00	15%	/ 10	CB08
8	Jigsaw evaluation (discussion)		Face-to-face	00:30	5%	/ 10	CG02
10	Delivery of exercise 2		No Presential	00:00	20%	/ 10	CB08

PR/CL/001
COORDINATION PROCESS OF
LEARNING ACTIVITIES

ANX-PR/CL/001-01
LEARNING GUIDE

E.T.S. de Ingenieros
Informaticos

14	Delivery of exercise 3		No Presential	00:00	35%	/ 10	CG02 CB08
17	Test 1		No Presential	01:00	10%	/ 10	CB08
17	Test 2		Face-to-face	00:30	10%	/ 10	CB08

6.1.3. Referred (re-sit) examination

Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
Test 1		Face-to-face	01:00	10%	/ 10	CB08
Test 2		Face-to-face	01:00	10%	/ 10	CB08
Delivery of exercise 1		Face-to-face	00:00	15%	/ 10	CB08
Delivery of exercise 2		Face-to-face	00:00	25%	/ 10	CB08
Delivery of exercise 3		Face-to-face	00:00	40%	/ 10	CG02 CB08

6.2. Assessment criteria

The assessment of this module is divided into two parts: theory and practice. Both parts have to be passed in order to pass the module. The grades obtained in theory and practice are combined as described in the section on evaluation activities.

Theory

The theoretical part of the module contains different assessments: there will be two test-based assessments; there is going to be assessment of the performance of the collaborative learning sessions that will be part of the study of accessibility standards; there will be short in-class evaluations during the semestee

Practical work

The practical work consists of 3 exercises:

- Exercise 1: a document containing change proposals for an accessibility standard.
- Exercise 2: an accessibility assessment of an ICT product, using the standard studied during collaborative learning.
- Exercise 3: development of a small accessible web site and evaluation of its accessibility. Students will show the accessibility of their sites.

Assessment procedure

PR/CL/001
COORDINATION PROCESS OF
LEARNING ACTIVITIES

ANX-PR/CL/001-01
LEARNING GUIDE

E.T.S. de Ingenieros
Informaticos

a) Continuous evaluation

The module will be assessed in a scale of 10 points, divided into theory and practical exercises. To pass the complete module it will be necessary to obtain a minimum of 3/10 point in theory and 3/10 points in the exercises.

All the practical exercises are mandatory and will be graded according to the section on evaluation activities.

The dates for the publication of grades and the ulterior exam revision will be notified as part of the corresponding exam. The exam revision will be made based on prior enquiries made by the students.

b) Non-continuous evaluation

In the case of non-continuous evaluation, there will be a theory exam and a classroom presentation of exercise 3 in week 17. The three exercises have to be delivered in the same time period as the one defined for continuous evaluation. The student will also have to attend the two collaborative sessions (jigsaw) described above.

c) Extraordinary evaluation period (July)

In the extraordinary evaluation period (July) the theory tests will be repeated and the pending exercises can be delivered again.

The grades obtained will apply the same weights as described for continuous evaluation.

7. Teaching resources

7.1. Teaching resources for the subject

Name	Type	Notes
Don't make me think!: Revisited. A Common Sense Approach to Web Usability	Bibliography	Krug, S. New Riders, 3rd edition ISBN: 978-0321965516, Jan. 2014
The Principles of Universal Design	Bibliography	Connell, B.R.; Jones, M.; Mace, R.; Mueller, J.; Mullick, A.; Ostroff, E.; Sanford, J.; Steinfeld, E.; Story, M.; Vanderheiden, G. Version 2.0. North Carolina State University. Abril 1997. http://www.ncsu.edu/ncsu/design/ cud/about_ud/udprinciples.htm
Information technology -- User interface accessibility -- Part 1: User accessibility needs	Bibliography	International Organization for Standardization (ISO), International Electrotechnical Commission (IEC). ISO/IEC 29138-1:2018. (Technical report ISO/IEC TR 29138-1, 2009, can be accessed at http://jtc1access.org/TR29138.htm)
El modelo de la diversidad. La Bioética y los Derechos Humanos como herramientas para alcanzar la plena dignidad en la diversidad funcional	Bibliography	Palacios, A.; Romañach, J. Ediciones Diversitas, ISBN: 8496474402, 2007.
A Web for Everyone. Designing accessible user experiences	Bibliography	Horton, S.; Quesenbery, W. Rosenfeld. 2014.
SIDAR	Web resource	Fundación Sidar - Acceso Universal: http://www.sidar.org, España. 2019

PR/CL/001
COORDINATION PROCESS OF
LEARNING ACTIVITIES

ANX-PR/CL/001-01
LEARNING GUIDE

E.T.S. de Ingenieros
Informaticos

8. Other information

8.1. Other information about the subject

Exercises cannot been done just copying from other sources. Personal writing and analysis work by the student should be included. Failing to do this, implies plagiarism, which is not allowed at this University and will lead to not passing the exercise involved (grade will be 0).

Human-Computer Interaction and Design. Specific Skills:

CE-DIPO01: Ability to conceptualise, design and develop the human computer interaction and design of innovative products and services

CE-DIPO02: Ability to evaluate the human computer interaction and design of innovative products and services

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

CE-DIPO04: Ability to analyse the information?s needs that arise in an environment and carry out the user-centred design process in all its stages