



POLITÉCNICA

INTERNATIONAL
CAMPUS OF
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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

103000603 - Challenges for accessible computing for people with functional diversity

DEGREE PROGRAMME

10AM - Master Universitario en Ingeniería del Software

ACADEMIC YEAR & SEMESTER

2017/18 - Semester 1

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1. Description

1.1. Subject details

Name of the subject	103000603 - Challenges for accessible computing for people with functional diversity
No of credits	4 ECTS
Type	Optional
Academic year of the programme	First year
Semester of tuition	Semester 1
Tuition period	September-January
Tuition languages	English
Degree programme	10AM - Master Universitario en Ingeniería del Software
Centre	Escuela Técnica Superior de Ingenieros Informáticos
Academic year	2017-18

2. Faculty

2.1. Faculty members with subject teaching role

Name and surname	Office/Room	Email	Tutoring hours *
Loic Antonio Martinez Normand	D3352	loic.mnormand@upm.es	M - 13:00 - 15:00 Th - 13:00 - 15:00 F - 13:00 - 15:00 It is recommended email to ask for an appointment

Jose Luis Fuertes Castro (Subject coordinator)	D4307	joseluis.fuertes@upm.es	M - 16:45 - 19:15 Tu - 17:00 - 19:00 W - 12:30 - 14:00
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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. Skills and learning outcomes *

3.1. 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.

CG13 - Apreciación de los límites del conocimiento actual y de la aplicación práctica de la tecnología más reciente

3.2. Learning outcomes

RA3 - Explains which are the Software Engineering limits and frontiers, and the base of new tendencies and developments and advanced topics and their possible application

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.

RA1 - Within an application field of Software Engineering, uses and designs the appropriate solution to solve some of its problems, describing the technical difficulties and the application limits

* 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 module 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 module will start with an introduction to basic ICT accessibility 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. Assistive products for ICT
- 1.4. Design for all

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. User centred design

- 3.1. Introduction to user centred design

4. State of the art in ICT accessibility

- 4.1. State of the art and future trends

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	Module introduction Duration: 02:00 Lecture			
2	Chapter 1, 1.1 and 1.2 Duration: 02:00 Lecture			
3	Chapter 1, 1.3 and 1.4 Duration: 02:00 Lecture			
4	Chapter 2, 2.1 and 2.2. Explanation of exercise 1 Duration: 02:00 Lecture			
5	Chapter 2, 2.3 Duration: 01:30 Cooperative activities			Jigsaw evaluation (discussion) Individual presentation Continuous assessment and final examination Duration: 00:30
6	Explanation of exercise 2 Duration: 01:00 Lecture			Test 1 Written test Continuous assessment Duration: 01:00
7	Chapter 2, 2.3 Duration: 01:30 Cooperative activities			Jigsaw evaluation (discussion) Individual presentation Continuous assessment and final examination Duration: 00:30 Delivery of exercise 1 Individual work Continuous assessment and final examination Duration: 00:00
8	Chapter 2, 2.4 Duration: 02:00 Lecture			
9	Classroom tutoring. Exercise 2 Duration: 02:00 Additional activities			
10	Chapter 3, 3.1 Duration: 02:00 Lecture			Delivery of exercise 2 Individual work Continuous assessment and final examination Duration: 00:00

11	Chapter 4, 4.1. Explanation of exercise 3 Duration: 02:00 Lecture			
12	Classroom tutoring about Collective revision of exercise 2 Duration: 02:00 Additional activities			
13	Classroom tutoring. Exercise 3 Duration: 02:00 Additional activities			
14	Classroom tutoring. Exercise 3 Duration: 02:00 Additional activities			
15				Classroom presentation of exercise 3 Individual presentation Continuous assessment Duration: 02:00
16				Classroom presentation of exercise 3 Individual presentation Continuous assessment Duration: 02:00 Delivery of exercise 3 Individual work Continuous assessment and final examination Duration: 00:00
17				Test 1 Written test Final examination Duration: 01:00 Presentation of exercise 3 Individual presentation Final examination Duration: 02:00 Test 2 Written test Continuous assessment and final examination Duration: 01:00

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.

6. Activities and assessment criteria

6.1. Assessment activities

6.1.1. Continuous assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
5	Jigsaw evaluation (discussion)	Individual presentation	Face-to-face	00:30	5%	/ 10	CE14
6	Test 1	Written test	Face-to-face	01:00	10%	/ 10	CE13
7	Jigsaw evaluation (discussion)	Individual presentation	Face-to-face	00:30	5%	/ 10	CE14
7	Delivery of exercise 1	Individual work	No Presential	00:00	15%	/ 10	CE14
10	Delivery of exercise 2	Individual work	No Presential	00:00	20%	/ 10	CE14
15	Classroom presentation of exercise 3	Individual presentation	Face-to-face	02:00	10%	/ 10	CE13 CG13
16	Classroom presentation of exercise 3	Individual presentation	Face-to-face	02:00	10%	/ 10	CE13 CG13
16	Delivery of exercise 3	Individual work	No Presential	00:00	15%	/ 10	CE13 CG13
17	Test 2	Written test	Face-to-face	01:00	10%	/ 10	CE14 CG13

6.1.2. Final examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
5	Jigsaw evaluation (discussion)	Individual presentation	Face-to-face	00:30	5%	/ 10	CE14
7	Jigsaw evaluation (discussion)	Individual presentation	Face-to-face	00:30	5%	/ 10	CE14
7	Delivery of exercise 1	Individual work	No Presential	00:00	15%	/ 10	CE14
10	Delivery of exercise 2	Individual work	No Presential	00:00	20%	/ 10	CE14
16	Delivery of exercise 3	Individual work	No Presential	00:00	15%	/ 10	CE13 CG13

17	Test 1	Written test	Face-to-face	01:00	10%	/ 10	CE13
17	Presentation of exercise 3	Individual presentation	Face-to-face	02:00	20%	/ 10	CE13 CG13
17	Test 2	Written test	Face-to-face	01:00	10%	/ 10	CE14 CG13

6.1.3. Referred (re-sit) examination

Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
Test1	Written test	Face-to-face	01:00	10%	/ 10	CE13
Test 2	Written test	Face-to-face	01:00	10%	/ 10	CE14 CG13
Delivery of exercise 1	Individual work	Face-to-face	00:00	15%	/ 10	CE14
Delivery of exercise 2	Individual work	Face-to-face	00:00	20%	/ 10	CE14
Delivery of exercise 3	Individual work	Face-to-face	00:00	15%	/ 10	CE13 CG13
Presentation of exercise 3	Individual work	Face-to-face	00:00	20%	/ 10	CE13 CG13

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 two different assessments. First, there will be two test-based assessments. Second, there is going to be assessment of the performance of the collaborative learning sessions that will be part of the study of accessibility standards

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: state of the art on one topic related to ICT accessibility. Students will make a short presentation in the classroom.

All the exercises are individual.

Assessment procedure

a) Continuous evaluation

The module will be assessed in a scale of 10 points, divided into 3 points for the theory and 7 points for the practical exercises. To pass the complete module it will be necessary to obtain a minimum of 1 point in theory, 3 points in the exercises and 5 points in the addition of theory and practice.

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) 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 participation in collaborative learning will not be re-assessed, so the grades received previously will be reused.

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

c) 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.

7. Teaching resources

7.1. Teaching resources for the subject

Name	Type	Notes
Don't make me think!: a Common Sense Approach to Web Usability	Bibliography	Krug, S. New Riders, ISBN: 0321344758, Sept., 2005.
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 -- Accessibility considerations for people with disabilities -- Part 1: User needs summary	Bibliography	Organización Internacional de Normalización (ISO), Comisión Internacional de Electrotecnia (IEC). ISO/IEC TR 29138-1. 2009. Disponible de forma gratuita en: 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. 2017