



POLITÉCNICA

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PR/CL/001



E.T.S. de Ingenieros
Informaticos

ANX-PR/CL/001-01

LEARNING GUIDE

SUBJECT

103000709 - Computer science seminars II

DEGREE PROGRAMME

10AQ - Eit Digital Master's Programme In Human Computer Interaction And Design

ACADEMIC YEAR & SEMESTER

2018/19 - Semester 1

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1. Description

1.1. Subject details

Name of the subject	103000709 - Computer science seminars II
No of credits	6 ECTS
Type	Compulsory
Academic year of the programme	First year
Semester of tuition	Semester 1
Tuition period	September-January
Tuition languages	English
Degree programme	10AQ - Eit digital master's programme in human computer interaction and design
Centre	10 - Escuela Tecnica Superior de Ingenieros Informaticos
Academic year	2018-19

2. Faculty

2.1. Faculty members with subject teaching role

Name and surname	Office/Room	Email	Tutoring hours *
Fco.javier Segovia Perez	2305	javier.segovia@upm.es	Tu - 14:00 - 17:00 Th - 14:00 - 15:00 F - 14:00 - 16:00 Request appointment with the instructor

Angelica De Antonio Jimenez (Subject coordinator)	3354	angelica.deantonio@upm.es	M - 12:00 - 14:00 W - 11:00 - 12:00 F - 10:30 - 13:30
Miguel Jimenez Gañan	4311	m.jimenez@upm.es	M - 11:00 - 14:00 F - 11:00 - 14:00
Fernando Perez Costoya	4201	fernando.perez@upm.es	M - 11:30 - 12:30 W - 11:00 - 13:00 Th - 11:30 - 13:30
Juan Rafael Zamorano Flores	4202	juanrafael.zamorano@upm.es	M - 10:00 - 11:00 M - 15:00 - 17:00 Tu - 15:00 - 17:00 F - 11:00 - 12:00
Elena Villalba Mora	5110	elena.villalba@upm.es	M - 12:00 - 15:00 F - 12:00 - 15:00

* 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	Hospital de Getafe

3. Skills and learning outcomes *

3.1. Skills to be learned

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

CE03 - Capacidad para la dirección de proyectos de investigación, desarrollo e innovación, en empresas y centros tecnológicos, con garantía de la seguridad para las personas y bienes, la calidad final de los productos y su homologación.

CE04 - Capacidad para modelar, diseñar, definir la arquitectura, implantar, gestionar, operar, administrar y mantener aplicaciones, redes, sistemas, servicios y contenidos informáticos.

CE05 - Capacidad de comprender y saber aplicar el funcionamiento y organización de Internet, las tecnologías y

protocolos de redes de nueva generación, los modelos de componentes, software intermediario y servicios

CE06 - Capacidad para asegurar, gestionar, auditar y certificar la calidad de los desarrollos, procesos, sistemas, servicios, aplicaciones y productos informáticos

CE07 - Capacidad para diseñar, desarrollar, gestionar y evaluar mecanismos de certificación y garantía de seguridad en el tratamiento y acceso a la información en un sistema de procesamiento local o distribuido

CE08 - Capacidad para analizar las necesidades de información que se plantean en un entorno y llevar a cabo en todas sus etapas el proceso de construcción de un sistema de información.

CE09 - Capacidad para diseñar y evaluar sistemas operativos y servidores, y aplicaciones y sistemas basados en computación distribuida.

CE11 - Capacidad de diseñar y desarrollar sistemas, aplicaciones y servicios informáticos en sistemas empotrados y ubicuos

CE12 - Capacidad para aplicar métodos matemáticos, estadísticos y de inteligencia artificial para modelar, diseñar y desarrollar aplicaciones, servicios, sistemas inteligentes y sistemas basados en el conocimiento

CG02 - Capacidad de gestionar la información

CG04 - Capacidad para la aplicación de los conocimientos adquiridos y de resolver problemas en entornos nuevos o poco conocidos dentro de contextos más amplios y multidisciplinarios, siendo capaces de integrar estos conocimientos

CG15 - Aproximación sistemática a la gestión de riesgos

3.2. Learning outcomes

RA25 - Understand applications and systems based on distributed computing

RA23 - Execute a data mining project to solve specific needs, choosing the best options

RA24 - Design embedded systems taking into account non functional requirements

RA26 - Design and evaluate operating systems and servers

* 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

Computer Science Seminars is a course designed to complement the competences more deeply elaborated in the Human Computer Interaction and Design program with additional competences that are required for graduating in the Master in Informatics Engineering at the Universidad Politécnica de Madrid.

It is composed of a set of independent seminars covering several topics.

4.2. Syllabus

1. Data engineering and mining
2. Embedded Systems
3. Network security and design
4. Ubiquitous Systems

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	<p>Introduction to network security and design Duration: 02:00 Lecture</p> <p>Introduction to Data Engineering Duration: 02:00 Lecture</p>			
2	<p>Network security and design Duration: 02:00 Lecture</p> <p>Data mining processes Duration: 01:00 Lecture</p> <p>Data mining processes - practice Duration: 01:00 Problem-solving class</p>			
3	<p>Network security and design Duration: 02:00 Lecture</p> <p>Data mining processes - practice Duration: 01:00 Problem-solving class</p> <p>Data mining processes Duration: 01:00 Lecture</p>			
4	<p>Network security and design Duration: 02:00 Lecture</p> <p>Data mining processes Duration: 01:00 Lecture</p> <p>Data mining processes - practice Duration: 01:00 Problem-solving class</p>			<p>Data mining project Group work Continuous assessment and final examination Duration: 02:00</p>
5	<p>Network security and design Duration: 02:00 Lecture</p> <p>Data mining processes - practice Duration: 01:00 Problem-solving class</p> <p>Data mining processes</p>			<p>Network security and design project Individual presentation Continuous assessment and final examination Duration: 02:00</p>

	Duration: 01:00 Lecture			
6	Introduction to Embedded Systems Duration: 02:00 Lecture Data mining processes - practice Duration: 01:00 Problem-solving class Data mining processes Duration: 01:00 Lecture			
7	Embedded Systems Duration: 02:00 Lecture Data mining processes Duration: 01:00 Lecture Data mining processes - practice Duration: 01:00 Problem-solving class			
8	Embedded Systems Duration: 02:00 Lecture Data mining problems Duration: 02:00 Lecture			Data mining project Group work Continuous assessment and final examination Duration: 02:00
9	Embedded Systems Duration: 02:00 Lecture Data mining problems Duration: 02:00 Lecture			
10	Embedded Systems Duration: 02:00 Lecture Data mining problems Duration: 02:00 Lecture			Embedded Systems project Group work Continuous assessment and final examination Duration: 02:00
11	Introduction to ubiquitous systems Duration: 02:00 Lecture Data mining problems Duration: 02:00 Lecture			
12	Ubiquitous systems Duration: 02:00 Lecture Data mining problems Duration: 02:00 Lecture			

13	Ubiquitous systems Duration: 02:00 Lecture Data mining problems Duration: 02:00 Lecture			
14	Ubiquitous systems Duration: 02:00 Lecture Data mining evaluation techniques Duration: 02:00 Lecture			Data mining project Group work Continuous assessment and final examination Duration: 02:00
15	Ubiquitous systems Duration: 02:00 Lecture Data mining evaluation techniques Duration: 02:00 Lecture			
16				Data mining exam Written test Continuous assessment and final examination Duration: 02:00 Ubiquitous Systems project Group work Continuous assessment and 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.

6. Activities and assessment criteria

6.1. Assessment activities

6.1.1. Continuous assessment

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
4	Data mining project	Group work	No Presential	02:00	12.5%	/ 10	CB09 CG02 CG04 CG15 CE04 CE12
5	Network security and design project	Individual presentation	Face-to-face	02:00	16.67%	/ 10	CB09 CE04 CE05 CE09
8	Data mining project	Group work	No Presential	02:00	12.5%	/ 10	CB09 CG02 CG15 CE04 CE08 CE12
10	Embedded Systems project	Group work	No Presential	02:00	16.67%	/ 10	CB09 CG04 CE04 CE09 CE11
14	Data mining project	Group work	No Presential	02:00	12.5%	/ 10	CB09 CG02 CG04 CG15 CE03 CE04 CE08 CE12
16	Data mining exam	Written test	Face-to-face	02:00	12.49%	/ 10	CG02 CG04 CG15 CE08 CE12

16	Ubiquitous Systems project	Group work	No Presential	02:00	16.67%	/ 10	CE04 CE11
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6.1.2. Final examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
4	Data mining project	Group work	No Presential	02:00	12.5%	/ 10	CB09 CG02 CG04 CG15 CE04 CE12
5	Network security and design project	Individual presentation	Face-to-face	02:00	16.67%	/ 10	CB09 CE04 CE05 CE09
8	Data mining project	Group work	No Presential	02:00	12.5%	/ 10	CB09 CG02 CG15 CE04 CE08 CE12
10	Embedded Systems project	Group work	No Presential	02:00	16.67%	/ 10	CB09 CG04 CE04 CE09 CE11
14	Data mining project	Group work	No Presential	02:00	12.5%	/ 10	CB09 CG02 CG04 CG15 CE03 CE04 CE08 CE12
16	Data mining exam	Written test	Face-to-face	02:00	12.49%	/ 10	CG02 CG04 CG15 CE08 CE12
16	Ubiquitous Systems project	Group work	No Presential	02:00	16.67%	/ 10	CE04 CE11

6.1.3. Referred (re-sit) examination

Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
Data mining exam	Written test	Face-to-face	00:00	50%	5 / 10	CG02 CG04 CG15 CE03 CE08 CE12
Network Security and Design Exam	Written test	Face-to-face	00:00	16.67%	5 / 10	CB09 CE04 CE05 CE09
Embedded Systems Exam	Written test	Face-to-face	00:00	16.67%	5 / 10	CB09 CG04 CE04 CE09 CE11
Ubiquitous Systems Exam	Written test	Face-to-face	00:00	16.66%	5 / 10	CE04 CE11

6.2. Assessment criteria

Each seminar will be independently graded, and the final grade will be computed as a weighted average of all grades, according to the following weights:

- Data engineering and mining: 50%
- Network security and design: 16,66%
- Embedded systems: 16,66%
- Ubiquitous Systems: 16,66%