



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

103000834 - Graph Analysis And Social Networks

DEGREE PROGRAMME

10AZ - Master Universitario En Innovación Digital

ACADEMIC YEAR & SEMESTER

2021/22 - Semester 2

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1. Description

1.1. Subject details

Name of the subject	103000834 - Graph Analysis And Social Networks
No of credits	3 ECTS
Type	Optional
Academic year of the programme	First year
Semester of tuition	Semester 2
Tuition period	February-June
Tuition languages	English
Degree programme	10AZ - Master Universitario en Innovación Digital
Centre	10 - Escuela Tecnica Superior De Ingenieros Informaticos
Academic year	2021-22

2. Faculty

2.1. Faculty members with subject teaching role

Name and surname	Office/Room	Email	Tutoring hours *
Emilio Serrano Fernandez		emilio.serrano@upm.es	Sin horario.
Javier Bajo Perez (Subject coordinator)		javier.bajo@upm.es	--

* 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

CE-CD04 - Capacidad para aplicar métodos avanzados para clasificación, modelado, segmentación y predicción a partir de un conjunto de datos

CE-FT01 - Capacidad para seleccionar las soluciones de almacenamiento, manipulación, análisis y visualización para datos estructurados y no estructurados financieros de fuentes heterogéneas adecuadas en función del problema a resolver y realizar una correcta comunicación del análisis

CG01 - Que los estudiantes sean capaces de predecir y controlar la evolución de situaciones complejas mediante el desarrollo de nuevas e innovadoras metodologías de trabajo adaptadas al ámbito científico/investigador, tecnológico o profesional concreto, en general multidisciplinar, en el que se desarrolle su actividad.

CG07 - Capacidad de trabajar y comunicarse también en contextos internacionales.

3.2. Learning outcomes

RA100 - Being able to understand how to effectively manage the analytical processes and use the results of these processes (models, clusters, etc.) as the basis for making informed, evidence-based decisions for creating value for a company

RA111 - Develop projects of data science

RA122 - Know the basics of data visualization techniques

RA49 - apply IA techniques in real data scenarios

RA6 - Communicate and describe the results of the stages of the user-centred design process

* 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

Social computing is a general term for an area of computer science that is concerned with the intersection of social behavior and computational systems. During recent years the Internet introduced a social element where users could network, share interests, publish personal insights and use their computers for more than just doing a job faster, and this has led to the development of social machines where both humans and machines collaborate to solve social problems. This course presents the principals of social computing and focuses on graph and network analysis.

4.2. Syllabus

1. Introduction to Social Computing.
2. Graph mining and Social Network Analysis.
3. Sentiment Analysis in Social Networks.
4. Trust and reputation in social networks
5. Practical assignment

5. Schedule

5.1. Subject schedule*

Week	Face-to-face classroom activities	Face-to-face laboratory activities	Distant / On-line	Assessment activities
1	Introduction to social computing. Duration: 03:00			
2	Graph mining and Social Network Analysis Duration: 03:00			
3	Graph mining and Social Network Analysis Duration: 03:00			
4				Evaluation in class. Research Work. Continuous assessment Presential Duration: 03:00
5	Sentiment Analysis in Social Networks. Duration: 03:00			
6	Trust and reputation in social networks. Duration: 03:00			
7	Practical Assignment Duration: 03:00			
8				Evaluation in class. Practical Work. Continuous assessment Presential Duration: 03:00
9				
10				
11				
12				
13				
14				
15				
16				
17				Research Work Final examination Presential Duration: 03:00 Practical Work. Final examination

				Presential Duration: 03:00
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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 schedule is based on an a priori planning of the subject; it might be modified during the academic year, especially considering the COVID19 evolution.

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	Evaluation in class. Research Work.		Face-to-face	03:00	40%	5 / 10	CE-FT01 CE-CD04
8	Evaluation in class. Practical Work.		Face-to-face	03:00	60%	5 / 10	CG07 CG01

6.1.2. Final examination

Week	Description	Modality	Type	Duration	Weight	Minimum grade	Evaluated skills
17	Research Work		Face-to-face	03:00	40%	5 / 10	CE-FT01 CE-CD04
17	Practical Work.		Face-to-face	03:00	60%	5 / 10	CG07 CG01

6.1.3. Referred (re-sit) examination

No se ha definido la evaluación extraordinaria.

6.2. Assessment criteria

Continuous Evaluacion

Research work (Exam):

Individual research work about one of the topics presented in class

The students can choose a topic of interest for them.

40% of the grade of the subject.

Practical work

Practical project about graph minning and/or analysis of social networks.

60% of the grade of the subject

Recovery exam

The student has a second chance to present one of the works (Research work or Practical work).

Extraordinary Exams.

Individual research work (40%)

Practical work (60%)

7. Teaching resources

7.1. Teaching resources for the subject

Name	Type	Notes
Slides	Web resource	