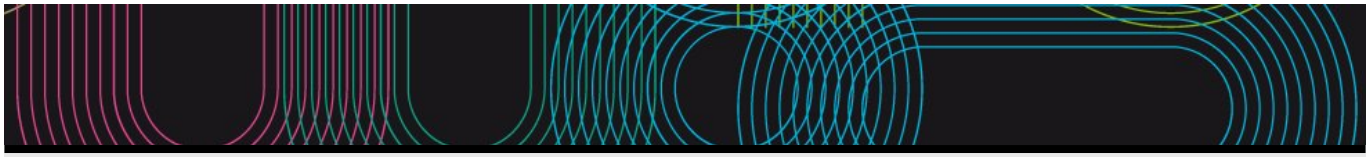

IDENTIFYING DATA				
(*)Tecnoloxías de Aplicación				
Subject	(*)Tecnoloxías de Aplicación			
Code	V05M145V01105			
Study programme	(*)Máster Universitario en Enxeñaría de Telecomunicación			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	5	Mandatory	1st	1st
Teaching language	Spanish English			
Department				
Coordinator	Díaz Redondo, Rebeca Pilar			
Lecturers	Díaz Redondo, Rebeca Pilar Fernández Vilas, Ana			
E-mail	rebeca@det.uvigo.es			
Web	http://http://http://faitic.uvigo.es/			
General description	Students will obtain a global picture of the main technological resources to design telematics applications. Basic problems like distributed computing, interoperability and services discovering will be addressed. These concepts will be study in the framework of the cloud computing paradigm.			

Competencies	
Code	
A5	CB5 Students must have learning skills to allow themselves to continue studying in largely self-directed or autonomous way
B1	CG1 The ability to project, calculate and design products, processes and facilities in telecommunication engineering areas.
B4	CG4 The capacity for mathematical modeling, calculation and simulation in technological centers and engineering companies, particularly in research, development and innovation tasks in all areas related to Telecommunication Engineering and associated multidisciplinary fields.
B8	CG8 The ability to apply acquired knowledge and to solve problems in new or unfamiliar environments within broader and multidiscipline contexts, being able to integrate knowledge.
B12	CG12 To have skills for lifelong, self-directed and autonomous learning.
C4	CE4 The ability to design and plan networks for transporting, broadcasting and distribution of multimedia signals.
C8	CE8 The ability to understand and know how to apply the operation and organization of the Internet, new generation Internet technologies and protocols, component models, middleware and services.
C9	CE9 The ability to solve convergence, interoperability and design of heterogeneous networks with local, access and trunk networks; as well as the integration of telephonic, data, television and interactive services.

Learning outcomes	
Expected results from this subject	Training and Learning Results
Know and apply the different communication techniques for communication and distributed computing	A5 B1 B4 B12 C4
Know and apply the techniques for data sharing to enable interoperability among systems and/or services	A5 B1 B8 B12 C4 C9

Know and apply how to specify and discover software services to be integrated in complex telematic solutions	A5 B1 B4 B8 B12 C4 C9
Know and apply virtualization concepts : cloud computing and content distribution networks.	A5 B1 B12 C4 C8

Contents

Topic	
1. Cloud computing: overview	a. Service models (IaaS, PaaS, SaaS) and deployment models b. Reference architectures for cloud applications: virtualization
2. Cloud Computing: AWS	a. Commercial platforms: AWS b. Data Storage
3. Distributed computing	a. Parallel computing b. Distributed computing c. Taking decisions in distributed systems
4. Data management	a. Choosing data store types b. Data storage approaches c. Distributed File Systems
5. Parallel computing	a. MapReduce b. Hadoop

Planning

	Class hours	Hours outside the classroom	Total hours
Laboratory practises	3	21	24
Master Session	32	34	66
Practical tests, real task execution and / or simulated.	3	30	33
Short answer tests	2	0	2

*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

	Description
Laboratory practises	Students will design and develop small prototypes and software solutions to reinforce the theoretical concepts explained in master sessions.
Master Session	Teachers will combine both concepts explanation and toy examples resolution. Resolution of small situations at class will foster debates, especially if it is done in groups.

Personalized attention

Methodologies	Description
Master Session	Students will develop different software solutions. They will be weekly monitored in order to assess their progress and receive personalized recommendations about their solutions.
Laboratory practises	Students will develop different software solutions. They will be weekly monitored in order to assess their progress and receive personalized recommendations about their solutions.

Assessment

	Description	Qualification	Training and Learning Results		
Practical tests, real task execution and / or simulated.	Students willl design and implement software solutions for different small problems.	40	A5	B1 B8 B12	C4 C8
Short answer tests	Written exam wich combines test and short answer questions. No extra material is allowed.	60	A5	B4 B8 B12	C8 C9

Other comments on the Evaluation

Students can follow up a continuous assessment model or decide to do a final exam. This selection should be done by 7th week. Once a student selects "continuous evaluation" his/her mark will never be "not taken".
1- CONTINUOUS ASSESSMENT
Final mark within this assessment schema will be composed by adding the marks obtained after the assessment of the following assignments:

- Writing exam
    - Dates: official calendar
    - Maximum score = 6 points
    - Minimum score required to pass = 2 points
- 2 intermediate practical assignments
    - Dates: 9th week, 13th week
    - Maximum score = 4 points

2- FINAL EXAM
Final mark within this assessment schema will be composed by adding the marks obtained after the assessment of the following assignments:

- Writing exam
    - Dates: official calendar
    - Maximum score = 6 points
    - Minimum score required to pass = 2 points
- 1 practical assignment
    - Dates: last week
    - Maximum score = 4 points

3- EXTRAORDINARY ASSESSEMENT
Students will be assessed using the "final exam" schema.

Sources of information

4.1 Basic bibliography

[2] "*Architecting the cloud*". Michael J. Kavis. 2010, Wiley

4.2 Complementary bibliography

[1] "*Cloud computing: principles and paradigms*". Rajkumar Buyya, James Broberg, Andrzej Goscinski. 2014, Wiley.

[3] "*Cloud Computing Bible*". Barrie Sosinsky. 2010, John Wiley & Sons

Recommendations