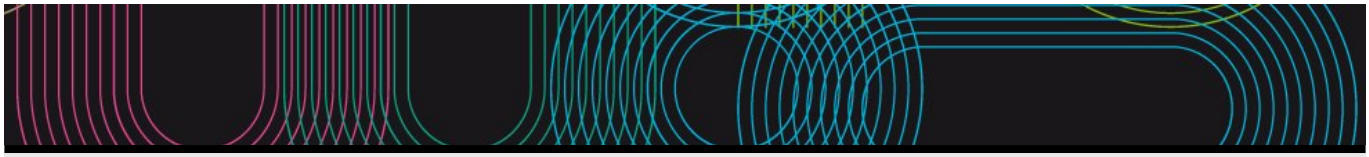

IDENTIFYING DATA				
(*)QoS en Internet				
Subject	(*)QoS en Internet			
Code	V05M039V01104			
Study programme	(*)Máster Universitario en Enxeñaría Telemática			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	4	Optional	1st	1st
Teaching language	Spanish			
Department				
Coordinator	Fernández Veiga, Manuel			
Lecturers	Fernández Veiga, Manuel Herrería Alonso, Sergio			
E-mail	mveiga@det.uvigo.es			
Web	http://www.det.uvigo.es/posgrado/09-10			
General description				

Competencies	
Code	
A1	(*)Adquirir un conocimiento avanzado de las técnicas, algoritmos y teorías más recientes en el área de las redes y los servicios telemáticos
A2	(*)Dominar y practicar las técnicas y metodologías básicas empleadas en la investigación en el área de la ingeniería telemática: modelado y análisis matemático, experimentación y pruebas
A3	(*)Capacidad de criticar, discutir y proponer razonadamente mejoras de las teorías, los métodos y las prácticas conocidos
A4	(*)Capacidad para integrar conocimientos multidisciplinares en la síntesis de sistemas o aplicaciones innovadoras dentro del ámbito de los sistemas de información
B1	(*)Que los estudiantes sepan aplicar los conocimientos adquiridos y su capacidad de resolución de problemas en entornos nuevos o poco conocidos dentro de contextos más amplios o multidisciplinares relacionados con el campo de estudio
B2	(*)Que los estudiantes aprendan a desarrollar conceptos, teorías o principios originales con los que dar solución a problemas nuevos derivados de avances que hayan tenido lugar en las disciplinas científicas básicas que integran su campo de estudio

Learning aims		
Expected results from this subject	Typology	Training and Learning Results
To know the mechanisms and architectures used in the provision of differentiated services in Internet	know	A1 A2 A3 A4 B1 B2
Capacity to apply methods to model and analyze network algorithms	Know How	A1 A2 A3 A4 B1 B2

Ability to understand, analyze and devise switching techniques, planning, routing and congestion control for differentiatred services in wireless and wired networks.	know	A1 A2 A3 A4 B1 B2
Skill to biuld, exploit and manage computer networks with multiple service classes, in any field of application (access networks, local networks, core networks)	Know How	A1 A2 A3 A4 B1 B2

Contents	
Topic	
Optimal resource allocation	Definition, modeling and study cases
Congestion control: dynamics, stability, fairness and efficiency	Models.Optimal solution. Fairness definitions. Dynamic analysis. Stability. Application to optical netwroks, wireless networks and Internet
Fair queueing	Algorithms. Performance. Algorithmic complexity. Implementations.
QoS routing	Simple and complex constraints. Solutions. Throughput analysis
QoS in wireless networks	Service agreements. Cooperation and diversity. Optimal resource allocation.
QoS in access networks	Service parameters. Resource allocation
Network coding	Definition. Algebraic formulation. imits. Application to multicast transmission and wireless network design.

Planning			
	Class hours	Hours outside the classroom	Total hours
Tutored works	0	44	44
Autonomous troubleshooting and / or exercises	0	35	35
Group tutoring	0	17	17
Short answer tests	0	2	2
Jobs and projects	0	1	1
Systematic observation	0	1	1
*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.			

Methodologies	
	Description
Tutored works	Individual work by the students. Research proposals supervised by the lecturers. Written essays to be presented in due time
Autonomous troubleshooting and / or exercises	(*) Aplicación del material de estudio a la resolución de problemas con modelos sencillos y casos prácticos de uso. Auto-evaluación de las competencias del alumno
Group tutoring	Personalised advising. Also, group meetings with two-three people by means of web tools, in order to guide the proposed projects.

Personalized attention	
Methodologies	**Description**
Group tutoring	Individual guidance about the proposal and development of suipervised research work
Tutored works	Individual guidance about the proposal and development of suipervised research work
Autonomous troubleshooting and / or exercises	Individual guidance about the proposal and development of suipervised research work

Assessment		
	Description	Qualification
Short answer tests	Three written examinations along the term. Written exercises to be completed in limited time. Open book	50
Jobs and projects	Evaluation of the research project conducted by the student: understanding, maturity, importance and originality of the work	25
Systematic observation	Active participation in the seminar and in the class debates	25

Other comments on the Evaluation

Sources of information

An anthology of recent and relevant papers. Specific references vary yearly.

Recommendations