[GIE303] COMMUNICATION NETWORKS II

GENERAL INFORMATION

Studies	DEGREE IN COMPUTER ENGINEERING			**Subject**	OPERATING SYSTEMS, DISTRIBUTED SYSTEMS AND NETWORKS
Semester	2	**Course**	2	**Mention / Field of specialisation**	
Character	COMPULSORY				
Plan	2022	**Modality**	Face-to-face	**Language**	EUSKARA
Credits	4,5	**Hours/week**	3.99	**Total hours**	71.9 class hours + 40.6 non-class hours = **112.5 total hours**

2030 AGENDA GOALS

PROFESSORS

GOMEZ DIEZ, CARLOS PEDRO

REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
(No specific previous subjects required)	*(No previous knowledge required)*

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
GIR207 - To determine the requirements, design, deploy, administer and manage the information and communication systems of an organization taking into account security aspects and compliance with current regulations and legislation.		x		4,02
G-RTR1 - To develop interdisciplinary projects specific to their specialty and of gradual complexity, - becoming aware of respect for human rights and fundamental rights, and analyzing and assessing the impact of the proposed solutions on the SDGs - to acquire and/or apply basic, advanced and/or avant-garde, demonstrating the ability to work in multidisciplinary teams and/or undertake further studies with a high degree of autonomy		x		0,32
G-RTR2 - To express information, ideas and the arguments that support them in an orderly, clear and coherent manner, orally and in writing, based on quality information, self-made or obtained from different sources, using inclusive and non-discriminatory language		x		0,16
			Total:	4,5

KC: Knowledge or Content / SK: Skills / AB: Abilities

LEARNING OUTCOMES OF THE QUALITY SEAL

EINF01 - Describe and explain mathematical concepts, theories and methods related to computing, computer equipment, computer communications and computer applications in accordance with the curriculum.

EINF02 - Describe the characteristics of the latest advances in hardware and software and their corresponding practical applications.

EINF03 - Describe current and historical advances in computing and demonstrate some insight into future trends and developments.

EINF08 - Select and use the appropriate analytical, simulation and modelling methods.

EINF19 - Explain the importance of information confidentiality and security issues with regard to the design, development, maintenance, supervision, and use of computer systems.

SECONDARY LEARNING RESULTS

2RGI292 (2 sem)

LEARNING ACTIVITIES	CH	NCH	TH
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	1,3 h.	,7 h.	2 h.

EVALUATION SYSTEM	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	20%
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	50%
Prototype / Product	30%

Comments: Continuous assessment.

MAKE-UP MECHANISMS

(No mechanisms)

CH - Class hours: 1,3 h.
NCH - Non-class hours: ,7 h.
TH - Total hours: 2 h.

2RGI293 (2 sem)

LEARNING ACTIVITIES	CH	NCH	TH
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams	1,3 h.	,7 h.	2 h.

Comments: Continuous assessment. It may be asked to redo the document.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	20%	*(No mechanisms)*
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	50%	
Prototype / Product	30%	

CH - Class hours: 1,3 h.
NCH - Non-class hours: ,7 h.
TH - Total hours: 2 h.

2RGI290 (2 sem)

LEARNING ACTIVITIES	CH	NCH	TH
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	2 h.	1 h.	3 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	20%	*(No mechanisms)*
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	50%	
Prototype / Product	30%	

Comments: Continuous assessment.

CH - Class hours: 2 h.
NCH - Non-class hours: 1 h.
TH - Total hours: 3 h.

2RGI294 (2 sem)

LEARNING ACTIVITIES	CH	NCH	TH
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams	1,3 h.	,7 h.	2 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Reports on the completion of exercises, case studies,	20%	*(No mechanisms)*

computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	50%
Prototype / Product	30%

Comments: Continuous assessment.

CH - Class hours: 1,3 h.
NCH - Non-class hours: ,7 h.
TH - Total hours: 2 h.

RGI217 **[!]** ***Reconoce las nuevas tendencias de las redes de comunicación y las tecnologías inalámbricas***

LEARNING ACTIVITIES	CH	NCH	TH
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.		2 h.
Computer simulation exercises, individually and/or in teams	9 h.	5 h.	14 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	12 h.	8 h.	20 h.
Carrying out exercises and solving problems individually and/or in teams	9 h.	5,5 h.	14,5 h.

EVALUATION SYSTEM	W
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	30%
Individual written and/or oral tests or individual coding/programming tests	70%

Comments: Minimum grade: 5

MAKE-UP MECHANISMS

Individual written and/or oral tests or individual coding/programming tests

Comments: Students with less than 5 in the Control point must retake the exam. Control point value will be 25% and retake 75%.

CH - Class hours: 32 h.
NCH - Non-class hours: 18,5 h.
TH - Total hours: 50,5 h.

RGI216 **[!]** ***Diseña, implementa, gestiona y resuelve los problemas que pueden surgir en las redes de comunicación de área extensa (WAN)***

LEARNING ACTIVITIES	CH	NCH	TH
Development and writing of records, reports, presentations, audiovisual material, etc. on projects/work experience/challenges/case studies/experimental investigations carried out individually and/or in teams	3 h.	1,4 h.	4,4 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.		2 h.
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	11 h.	6,6 h.	17,6 h.
Computer simulation exercises, individually and/or in teams	6 h.	4 h.	10 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	6 h.	4 h.	10 h.
Carrying out exercises and solving problems individually and/or in teams	4 h.	2 h.	6 h.

EVALUATION SYSTEM	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	9%
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree	23%

MAKE-UP MECHANISMS

Individual written and/or oral tests or individual coding/programming tests

Comments: Students with less than 5 in the Control point must retake the exam. Control point value will be 25% and retake 75%. Project: There will not be any retake of the individual defense.

project, master's thesis, challenges and problems	
Individual written and/or oral tests or individual coding/programming tests	55%
Prototype / Product	13%

Comments: Minimum grade: 5 Project evaluation based on technical rubric

CH - Class hours: 32 h.
NCH - Non-class hours: 18 h.
TH - Total hours: 50 h.

2RGI291 (2 sem)

LEARNING ACTIVITIES	CH	NCH	TH
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	2 h.	1 h.	3 h.

EVALUATION SYSTEM	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	20%
Presentation and defence of exercises, case studies, computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems	50%
Prototype / Product	30%

Comments: Continuous assessment.

MAKE-UP MECHANISMS

(No mechanisms)

CH - Class hours: 2 h.
NCH - Non-class hours: 1 h.
TH - Total hours: 3 h.

CONTENTS

[!]

1. Redes WAN 1.1 Conexiones empresariales 1.2 Protocolos WAN de enrutamiento avanzado: BGP, OSPF multiarea 1.3 Tunneling 1.4 QoS y Colas2. Administración y seguridad de redes 2.1 Administración de servicios de red (DNS, DHCP, SMTP, HTTP) 2.1 SNMP 2.2 SYSLOG 2.3 Netflow 2.4 NTP y LLDP3. Nuevas tendencias 3.1 Virtualización: SDN, Cloud 3.2 Automatización4. Redes inalámbricas LAN (WLAN) 4.1 Controladores WLC 4.2 Zigbee, NFC 4.3 Redes industriales, IIoT

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
[!] *Apuntes de la asignatura*	https://labur.eus/biblio-GIE303
[!] *Plataforma Moodle*	
[!] *Software específico de la titulación*	
[!] *Laboratorios*	