

[GIE302] INFRASTRUCTURES AND SYSTEMS

GENERAL INFORMATION

Studies	DEGREE IN COMPUTER ENGINEERING		Subject	OPERATING SYSTEMS, DISTRIBUTED SYSTEMS AND NETWORKS	
Semester	1	Course	2	Mention / Field of specialisation	
Character	COMPULSORY		Language	EUSKARA	
Plan	2022		Modality	Face-to-face	
Credits	6	Hours/week	5.44	Total hours	98 class hours + 52 non-class hours = 150 total hours

PROFESSORS

VELEZ DE MENDIZABAL GONZALEZ, IÑAKI
GARITANO GARITANO, IÑAKI

REQUIRED PREVIOUS KNOWLEDGE

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

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
GIR202 - To know how to manage and maintain computer systems, services and applications		x		5,4
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		0,28
Total:				6

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

SECONDARY LEARNING RESULTS

RG1290 [!] *Proponer los objetivos y la planificación de un proyecto que le permita adquirir y/o reforzar los conocimientos de tecnologías propias de su especialidad,- que en ocasiones llegan a la vanguardia del conocimiento- y definir una estrategia de aprendiz*

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	3 h.	1 h.	4 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: 3 h.

NCH - Non-class hours: 1 h.

TH - Total hours: 4 h.

RG1291 [!] *Establecer las responsabilidades de los miembros del equipo utilizando técnicas adecuadas para fomentar la eficiencia del equipo para el desarrollo del proyecto en los plazos establecidos (compartir recursos, aportar ideas, habilidades comunicativas*

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	3 h.	1 h.	4 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: 3 h.			
NCH - Non-class hours: 1 h.			
TH - Total hours: 4 h.			

RG1293 [!] *Redacta y estructura correctamente la memoria del proyecto, haciendo un uso correcto, inclusivo y no discriminatorio del lenguaje. Para ello, busca y hace uso de las fuentes de información adecuadas*

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 h.	4 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: 3 h.			
NCH - Non-class hours: 1 h.			
TH - Total hours: 4 h.			

RG1294 [!] *Realiza una presentación oral del proyecto con argumentos elaborados por sí mismos y haciendo un uso correcto, inclusivo y no discriminatorio del lenguaje*

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	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.

RG1203 [!] *Instala y administra sistemas operativos libres en servidores y clientes, sobre los cuales despliega y administra servicios de modo seguro*

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	2 h.	,2 h.	2,2 h.
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning	5 h.	3 h.	8 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	1 h.		1 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	6 h.	2,8 h.	8,8 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	1 h.		1 h.
Carrying out exercises and solving problems individually and/or in teams	17 h.	12 h.	29 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	4%
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	11%
Individual written and/or oral tests or individual coding/programming tests	78%
Prototype / Product	7%

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

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.

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

RG1204 [!] *Instala y administra sistemas operativos propietarios en servidores y clientes, sobre los cuales despliega y administra servicios de modo seguro*

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	2 h.	,2 h.	2,2 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	6 h.	2,8 h.	8,8 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	5 h.	2 h.	7 h.
Carrying out exercises and solving problems individually and/or in teams	18 h.	12 h.	30 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	4%
Presentation and defence of exercises, case studies,	11%

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%.

computer practical work, simulation practical work,
laboratory practical work, term projects, end of degree
project, master's thesis, challenges and problems

Individual written and/or oral tests or individual
coding/programming tests 78%

Prototype / Product 7%

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

CH - Class hours: 33 h.

NCH - Non-class hours: 17 h.

TH - Total hours: 50 h.

Project: There will not be any retake of the individual defense.

RG1205 [!] *Crea y administra máquinas virtuales en un entorno nube (cloud) e implanta y administra servicios sobre estas de forma segura*

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 h.	,6 h.	1,6 h.

Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	1 h.		1 h.
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Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	4 h.	2,4 h.	6,4 h.
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Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	4 h.	2 h.	6 h.
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Practical work in workshops and/or laboratories, individually and/or in teams	12 h.	8 h.	20 h.
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EVALUATION SYSTEM

	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	4%

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	11%
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Individual written and/or oral tests or individual coding/programming tests	78%
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Prototype / Product	7%
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Comments: Minimum grade: 5 Project evaluation based on
technical rubric

CH - Class hours: 22 h.

NCH - Non-class hours: 13 h.

TH - Total hours: 35 h.

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.

CONTENTS

1. Introduction to ICT infrastructures 2. Proprietary operating systems (Windows) 2.1 Installation 2.2 Domain management 2.3 System policies 2.4. Installation and management of services (DNS, DHCP, W eb, etc.) 2.5 Performance improvement and monitoring (Logs) 2.6 Job automation 3. Free operating systems 3.1 Introduction to GNU/Linux 3.2 DHCP 3.3 DNS 3.4 LDAP 3.5 Web server 3.6 SMB/CIFS 3.7 Containers 3.8 Backups 3.9 Task management 4. Virtualization services 4.1 Hypervisors 4.2 Virtualization of cloud systems 4.3 Network services in the cloud

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

Subject notes
Moodle Platform
Specific Master Software

Bibliography

<https://labur.eus/biblio-GIE302>

Video projections

Labs