

[GIB301] PHYSICS

GENERAL INFORMATION

Studies	DEGREE IN COMPUTER ENGINEERING		Subject	PHYSICS
Semester	1	Course	1	Mention / Field of specialisation
Character	BASIC TRAINING		Language	EUSKARA
Plan	2022	Modality	Face-to-face	Total hours
Credits	6	Hours/week	5.39	97 class hours + 53 non-class hours = 150 total hours

PROFESSORS

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AZPI-BELATEGI, JULEN (ARDATZ)

REQUIRED PREVIOUS KNOWLEDGE

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

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
G-RA09 - To understand and master the basic concepts of the general laws of fields and waves; and electromagnetism and its application to solve engineering problems		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		0,28
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		0,32
Total:				6

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

SECONDARY LEARNING RESULTS

RG117 [!] *Identifica, examina y calcula la oscilación y los fenómenos de onda*

LEARNING ACTIVITIES

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

CH	NCH	TH
2 h.	1 h.	3 h.
8 h.	4 h.	12 h.
8 h.	4 h.	12 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

Practical work in workshops and/or laboratories, individually and/or in teams

EVALUATION SYSTEM

	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	29%
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	28%
Prototype / Product	43%

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

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.

CH - Class hours: 18 h.

NCH - Non-class hours: 9 h.

TH - Total hours: 27 h.

RG118 [!] *Resuelve los problemas y las operaciones en el campo del electromagnetismo, relacionando correctamente las*

magnitudes físicas implicadas

LEARNING ACTIVITIES	CH	NCH	TH
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning	5 h.	2 h.	7 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	24 h.	16 h.	40 h.

EVALUATION SYSTEM

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

Comments: Minimum grade: 5

W

100%

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: 34 h.

NCH - Non-class hours: 20 h.

TH - Total hours: 54 h.

RG119 [!] *Analiza y resuelve los circuitos de corriente directa y la corriente alterna*

LEARNING ACTIVITIES	CH	NCH	TH
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning	9 h.	5 h.	14 h.
Carrying out exercises and solving problems individually and/or in teams	24 h.	15 h.	39 h.
Practical work in workshops and/or laboratories, individually and/or in teams	1 h.		1 h.

EVALUATION SYSTEM

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

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

Comments: Minimum grade: 5

W

5%

95%

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: 34 h.

NCH - Non-class hours: 20 h.

TH - Total hours: 54 h.

RG190 [!] *Conocer y aplicar las fases para desarrollar de forma guiada, con los objetivos y la planificación previamente definidos, un proyecto de complejidad técnica acorde con los conocimientos de formación básica de la ingeniería. Reflexiona sobre los cono*

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

Reports on the completion of exercises, case studies, 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

Prototype / Product

Comments: Continuous assessment.

W

20%

50%

30%

MAKE-UP MECHANISMS

(No mechanisms)

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

RG191 [!] *Contribuir en la estrategia de funcionamiento del equipo priorizando los objetivos comunes, fomentando y valorando la participación de todas las personas y responsabilizándose de las tareas individuales, así como del cumplimiento de plazos*

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%	<i>(No mechanisms)</i>	
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.

RG193 [!] *Redacta una memoria de proyecto clara y concisa utilizando las fuentes de información y estructura de memoria facilitadas, 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	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%	<i>(No mechanisms)</i>	
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. It may be asked to redo the document.

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

RG194 [!] *Realiza una presentación oral y defensa del proyecto clara y concisa, haciendo uso correcto, inclusivo y no discriminatorio del lenguaje*

LEARNING ACTIVITIES

	CH	NCH	TH
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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.

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.

CONTENTS

1. Oscillations and waves 1.1 Simple harmonic motion. 1.2 Oscillations. 1.3 Oscillatory motion. 1.4 Characteristics of waves 1.5 Wave phenomena. 2. Electrostatics 2.1 Electric charge. 2.2 Coulomb's Law. 2.3 Electric Field. 2.4 Electric potential 2.5 Electrostatic energy 2.6 Capacitors 3. DC circuits 3.1 Electric current 3.2 Resistance 3.3 Joule effect 3.4 Electromotive force 3.5 Ohm's Law 3.6 Electrical power 3.7 Circuit analysis techniques: Kirchoff's laws, Thévenin's theorem, principle of superposition. 4. Electromagnetism 4.1 Magnetic fields 4.2 Field sources 4.3 Magnetic flux 4.4 Electromagnetic forces 4.5 Forces on currents 4.6 Magnetic Materials 4.7 Electromagnetic induction 4.8 Inductance 4.8 Inductance 5. Alternating current circuits 5.1 Analysis of steady-state AC RLC circuits 5.2 Complex impedance 5.3 Phasors 5.4 Active, reactive and apparent power 5.5 Power factor

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

Bibliography

Subject notes
 Moodle Platform
 Specific Master Software
 Lab practical training

<https://labur.eus/biblio-GIB301>