[GDB302] PHYSICS II

GENERAL INFORMATION

Studies	DEGREE IN INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING			**Subject**	PHYSICS
Semester	2	**Course**	1	**Mention / Field of specialisation**	
Character	BASIC TRAINING				
Plan	2022	**Modality**	Face-to-face	**Language**	EUSKARA
Credits	6	**Hours/week**	4.33	**Total hours**	78 class hours + 72 non-class hours = **150 total hours**

2030 AGENDA GOALS

PROFESSORS

GANDARIAS INCHAUSTI, KEPA
CABEZAS OLIVENZA, MIREYA

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		0,36
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		0,24
			Total:	6

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

LEARNING OUTCOMES OF THE QUALITY SEAL	ECTS
ENAE01 - Knowledge and understanding: Knowledge and understanding of the underlying scientific and mathematical principles in their branch of engineering.	1,6
ENAE02 - Knowledge and understanding: A systematic understanding of the key aspects and concepts of their branch of engineering.	1,12
ENAE05 - Analysis in engineering: Ability to apply their knowledge and understanding in identifying, formulating and solving engineering problems using established methods.	1,36
ENAE07 - Analysis in engineering: Ability to choose and apply relevant modelling and analytical methods.	0,4
ENAE08 - Engineering projects: Ability to apply their knowledge in the development and completion of projects which meet specific requirements.	0,36
ENAE09 - Engineering projects: Understanding of the different methods and ability to use them.	0,4
ENAE14 - Practical application of engineering: Ability to combine theory and practice in order to solve engineering problems.	0,36
ENAE15 - Practical application of engineering: Understanding of applicable methods and techniques and their limitations.	0,4
Total:	6

SECONDARY LEARNING RESULTS

2RGD191 **(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 h.	2 h.	3 h.

EVALUATION SYSTEM	W
Presentation and defence of exercises, case studies, computer practical work, simulation practical work,	100%

MAKE-UP MECHANISMS

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

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

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

2RGD193 **(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 h.	2 h.	3 h.

EVALUATION SYSTEM	W	MAKE-UP 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	100%	Individual written and/or oral tests or individual coding/programming tests

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

2RGD190 **(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	2 h.	1 h.	3 h.

EVALUATION SYSTEM	W	MAKE-UP 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	100%	*(No mechanisms)*

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

2RGD192 **(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	100%	*(No mechanisms)*

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

TH - Total hours: 3 h.

2RGD194 **(2 sem)**

LEARNING ACTIVITIES	CH	NCH	TH
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.	1 h.	3 h.

EVALUATION SYSTEM	W	MAKE-UP 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	100%	*(No mechanisms)*

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

RGD117 **[!]** ***Identifica, examina y calcula la oscilación y los fenómenos de onda***

LEARNING ACTIVITIES	CH	NCH	TH
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	10 h.	5 h.	15 h.
Carrying out exercises and solving problems individually and/or in teams	5 h.	2 h.	7 h.
Self-assessment tests in a context of autonomous and continuous learning		5 h.	5 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	5%	Individual written and/or oral tests or individual coding/programming tests
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	10%	
Individual written and/or oral tests or individual coding/programming tests	80%	
Self-assessment	5%	

CH - Class hours: 15 h.
NCH - Non-class hours: 12 h.
TH - Total hours: 27 h.

RGD118 **[!]** ***Resuelve los problemas y las operaciones en el campo del electromagnetismo, relacionando correctamente las magnitudes físicas implicadas***

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		5 h.	5 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	20 h.	10 h.	30 h.
Carrying out exercises and solving problems individually and/or in teams	5 h.	10 h.	15 h.
Self-assessment tests in a context of autonomous and continuous learning		4 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	5%	Individual written and/or oral tests or individual coding/programming tests
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	10%	
Individual written and/or oral tests or individual coding/programming tests	80%	
Self-assessment	5%	

CH - Class hours: 25 h.
NCH - Non-class hours: 29 h.
TH - Total hours: 54 h.

RGD119 **[!]** ***Analiza y resuelve los circuitos de corriente directa y la corriente alterna***

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	5 h.	5 h.	10 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	20 h.	10 h.	30 h.
Carrying out exercises and solving problems individually and/or in teams	5 h.	5 h.	10 h.
Self-assessment tests in a context of autonomous and continuous learning		4 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	5%	*(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	10%	
Individual written and/or oral tests or individual coding/programming tests	80%	
Self-assessment	5%	

CH - Class hours: 30 h.
NCH - Non-class hours: 24 h.
TH - Total hours: 54 h.

CONTENTS

[!]
•Movimiento armónico simple (10 horas)

–Movimiento armónico simple

•Fenómenos de onda (10 horas)

–Ecuación de onda, parámetros básicos

–Interferencia, reflexión refracción, efecto Doppler

–Ondas estacionarias

•Campo eléctrico (10 horas)

–Fuerza eléctrica, campo eléctrico, potencial eléctrico

–Condensadores

•Magnetismo (15 h)

–Fuerzas magnéticas, Biot-Savart, inducción, autoinducción

–Momento sobre una espira

•Corriente continua (15 horas)

–Ley Ohm, efecto Joule, agrupaciones de resistencias.

–Métodos de resolución de circuitos: leyes de Kirchoff, redes corrientes,

Thevenin?,…

•Corriente alterna (10 horas)

–Elementos básicos (R, L, C) y su comportamiento

–Resolución de circuitos (1 y 2 redes) mediante números complejos

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

[!] *Apuntes de la asignatura*
[!] *Plataforma Moodle*
[!] *Presentaciones en clase*
[!] *Transparencias de la asignatura*
[!] *Unidad didáctica*

Bibliography

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Fisika Zientzialari eta Ingeniarientzat; P. M. Fishbane, et al., EHU-ko argitalpen zerbitzua, 2018.

Mecánica para ingenieros: Dinámica; J. L. Meriam, L. G. Kraige; Ed. Reverté, 3º Ed., 2014 (3. eta 8. kapituluak).

Análisis de circuitos en ingeniería; W. H. Hayt, J. E. Kemmerly, S. M. Durbin; Mc Graw Hill, 9 Ed., 2019.

Circuitos eléctricos; M. Nahvi, J. A. Edminister, Schaum – Mc Graw Hill, 4º Ed., 2005.