Goi Eskola Politeknikoa | Mondragon Unibertsitatea
Course: 2024 / 2025 - Course planning

Mondragon
Unibertsitatea

Goi Eskola
Politeknikoa
Escuela Politécnica
Superior

[GDB301] PHYSICS I

GENERAL INFORMATION

Studies	DEGREE IN INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING	**Subject**	PHYSICS
Semester	1	**Course** 1	
Character	BASIC TRAINING	**Mention / Field of specialisation**	
Plan	2022	**Modality** Face-to-face	
Credits	6	**Hours/week** 5.06	**Language** EUSKARA
		Total hours	91 class hours + 59 non-class hours = **150 total hours**

2030 AGENDA GOALS

8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

PROFESSORS

GALFARSORO ANDUAGA, UNAI

OROBENGOA GURIDI, DANEL

REQUIRED PREVIOUS KNOWLEDGE

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

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
G-RA03 - To understand and master the basic concepts of the general laws of mechanics, and their 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

ENAEE LEARNING RESULTS	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

1RGD192 (1 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)*

Goi Eskola Politeknikoa | Mondragon Unibertsitatea
Course: 2024 / 2025 - Course planning

Mondragon Unibertsitatea
Goi Eskola
Politeknikoa
Escuela Politécnica
Superior

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

RGD106 [!] *Identifica, calcula y analiza el movimiento de partículas y sólidos, así como los sistemas de fuerza necesarios para producirlos*

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	10 h.	6 h.	16 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	4 h.		4 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	30 h.		30 h.
Carrying out exercises and solving problems individually and/or in teams	10 h.	22 h.	32 h.
Self-assessment tests in a context of autonomous and continuous learning		8 h.	8 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%	Individual written and/or oral tests or individual coding/programming tests
Individual written and/or oral tests or individual coding/programming tests	80%	

CH - Class hours: 54 h.
NCH - Non-class hours: 36 h.
TH - Total hours: 90 h.

1RGD191 **(1 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
Self-assessment	33%	*(No mechanisms)*
Co-assessment	34%	
Observation (technical capacity, attitude and participation)	33%	

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

1RGD190 **(1 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

Goi Eskola Politeknikoa | Mondragon Unibertsitatea
Course: 2024 / 2025 - Course planning

Mondragon
Unibertsitatea
Goi Eskola
Politeknikoa
Escuela Politécnica
Superior

Observation (technical capacity, attitude and participation)	100%	*(No mechanisms)*

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

1RGD194 (1 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.

RGD105 [!] *Modelizar, calcular y examinar el equilibrio estático de los sólidos*

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.	3 h.	8 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.		2 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	15 h.		15 h.
Carrying out exercises and solving problems individually and/or in teams	5 h.	11 h.	16 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	20%	Individual written and/or oral tests or individual coding/programming tests
Individual written and/or oral tests or individual coding/programming tests	80%	

CH - Class hours: 27 h.
NCH - Non-class hours: 18 h.
TH - Total hours: 45 h.

1RGD193 (1 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.

Goi Eskola Politeknikoa | Mondragon Unibertsitatea
Course: 2024 / 2025 - Course planning

Mondragon
Unibertsitatea
Goi Eskola
Politeknikoa
Escuela Politécnica
Superior

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.

CONTENTS

1. STATICS1.1 Forces and moments Forces and components Moments and torques1.2 Newton's laws Equilibrium of particles Equilibrium of solids1.3 Free solid diagrams in 2D and 3D Isolation of a mechanical system Joints Contact forces: normal and friction1.4. Centroid. Center of masses. Center of gravity. Distributed forces2. KINEMATICS2.1. Rectilinear motion of the particle. Position, velocity and acceleration2.2. General motion of the particle Tangential and normal components2.3. Practical cases: parabolic motion and circular motion2.4. Linked motion3. KINETICS3.1. Kinetics of particles. Newton's 2nd law3.2. Rigid solid kinetics. Newton's 2nd law3.3. Particle kinetics. Energy methods3.4. Rigid solid kinetics. Energetic methodsTranslated with DeepL.com (free version)

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
[!] *Plataforma Moodle*	https://katalogoa.mondragon.edu/janium-bin/sumario.pl?Id=20230918125428
[!] *Presentaciones en clase*	
[!] *Transparencias de la asignatura*	
[!] *Apuntes de la asignatura*	