

Course: 2024 / 2025 - Course planning



RA03 - To understand and master the basic concepts of the general laws of mechanics, and their x 5.4 APR14 - To develop interdisciplinary projects specific to their specialty and of gradual complexity, - x 0.36 secoming aware of respect for human rights and fundamental rights, and analyzing and assessing the space of the proposed solutions on the SDGs - to acquire and/or apply basic, advanced and/or anant-garde, demonstrating the ability to work in multidisciplinary teams and/or undertake further studies that high degree of autonomy x 0.24 RR12 - To express information, ideas and the arguments that support them in an orderly, clear and x 0.24 wherent manner, orally and in writing, based on quality information, self-made or obtained from different surces, using inclusive and non-discriminatory language Total: 6 NAEE LEARNING RESULTS NAEE LEARNING RESULTS 6 NA101 - Knowledge and comprehension: Knowledge and understanding of mathematics and other basic sciences inherent in them ngineering speciality, at a level that allows them to acquire the other competencies of the degree. NA104 - Analysis in engineering: The ability to analyse complex products, processes and systems in their field of study; choose and applevant analytical, calculation and experimental methods in a suitable way; and correctly interpret the results of such analyses. NA16 - Engineering projects: Ability to project, design and develop complex products (parts, components, finished products, etc.), rocesses and systems of their speciality, which meet the established requirements, including awareness of the social, health and sa						5	uperior
Studies DEGREE IN MECHANICAL ENGINEERING Subject PHYSICS Semester 1 Course 1 Montion / Field of specialisation Subject PHYSICS Plan 2022 Modality Face-to-face Language EUSKARA Total hours 90 class hours + 60 non-class hours = 150 to hours 2030 AGENDA GOALS 2030 AGENDA GOALS Nours PROFESSORS EZKURRA MAYOR, MIKEL AZDURU NAZABAL, AITZIBER TELLERIA ARIZTIMUÑO, XUBAN REQUIRED PREVIOUS KNOWLEDGE Voltage AR05 - To understand and master the basic concepts of the general laws of mechanics, and heir X 0.38 AR05 - To understand and master the basic concepts of the general laws of mechanics, and heir ppication to solve engineering problems X 0.38 RTR1 - To device of numanitights and fundamental rights, and analyzing and assessing the ppact of the proposed solutions on the SDGs - to acquire and/or apply basic, advanced and/or ant-gard, demonstrating the ability to work in multidisciplinary teams and/or undertake further studies the high degree of autonomy. 0.24 NRTR - To device sind nord master the basic complex products, problems discliption and experimention, self-made or obtained from different surces, using inclusive and non-discriminatory language 0.24 AR03 - To understand and master the basic sciences inherent in them findered autonomy. 0.24 AR04 - Countert / SK: SMB / AB: Ability to snalybe complex products, proceses and systems in thein field of study; choos		[GMB301]	PHYSICS I				
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1RGM194 (1 sem)		SECONDARY LEA	ARNING RESULTS				
1RGM194 (1 sem)							
1RGM194 (1 sem)							
	1RGM194 (1 sem)						

LEARNING ACTIVITIES		СН	NCH	тн		
Development and writing of records, reports, presentatio projects/work experience/challenges/case studies/experi individually and/or in teams		1,5 h.	1,5 h.	3 h.		
EVALUATION SYSTEM	MAKE-UP MECHANI	SMS				
Presentation and defence of exercises, case studies,	100%		(No mech			d. d
computer practical work, simulation practical work,	Comments: Continuo	us evaluation	1. Through the	meetinds wi	th the	

laboratory practical work, term projects, end of degree

tutor and the experts throughout the project, the work is channelled,





project, master's thesis, challenges and problems mistake **Comments:** Continuous evaluation. Through the meetings with the tutor and the experts throughout the project, the work is channelled, mistakes are corrected and feedback is given to overcome the project.

mistakes are corrected and feedback is given to overcome the project.

CH - Class hours: 1,5 h. NCH - Non-class hours: 1,5 h. TH - Total hours: 3 h.

LEARNING ACTIVITIES				NCH	ТН
Development and writing of records, reports, presentation projects/work experience/challenges/case studies/experin individually and/or in teams			5 h.	3 h.	8 h.
Conducting tests, giving presentations, presenting defend checkpoints	ces, taking	examinations and/or doing	2 h.		2 h.
Presentation by the teacher in the classroom, in participa procedures associated with the subjects	tory classe	es, of concepts and	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 co	ontinuous l	earning		4 h.	4 h.
EVALUATION SYSTEM	W	MAKE-UP MECHANISM	IS		
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	20%	Individual written and/or coding/programming tes		or individual	
Individual written and/or oral tests or individual coding/programming tests	80%				

1RGM192 (1 sem)

Development and writing of records, reports, presentations, projects/work experience/challenges/case studies/experime individually and/or in teams			2 h.	1 h.	3 h.
EVALUATION SYSTEM	w	MAKE-UP MECHAN	SMS		
Self-assessment	33%		(No mech	anisms)	
Co-assessment	34%	Comments: Continuo	ous evaluatio	n. Through the	meetings with t
Observation (technical capacity, attitude and participation)	33%	tutor and the experts th mistakes are corrected project.			
CH - Class hours: 2 h. ICH - Non-class hours: 1 h. TH - Total hours: 3 h.					

1RGM193 (1 sem)



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



			СН	NCH	TH
Development and writing of records, reports, presentation projects/work experience/challenges/case studies/experin individually and/or in teams			1,5 h.	1,5 h.	3 h.
EVALUATION SYSTEM	W	MAKE-UP MECHANIS	SMS		
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%		(No mech	anisms)	
H - Class hours: 1,5 h. CH - Non-class hours: 1,5 h. H - Total hours: 3 h.					
RGM190 (1 sem)					
LEARNING ACTIVITIES			СН	NCH	ТН
Development and writing of records, reports, presentation projects/work experience/challenges/case studies/experin individually and/or in teams			2 h.	1 h.	3 h.
	W) 100%	MAKE-UP MECHANIS	SMS (No mech	anisms)	
Observation (technical capacity, attitude and participation Comments: Continuous evaluation. Through the meeting: tor and the experts throughout the project, the work is cha- istakes are corrected and feedback is given to overcome oject. H - Class hours: 2 h. CH - Non-class hours: 1 h.) ^{100%} s with the annelled,	MAKE-UP MECHANIS	(No mech us evaluation oughout the	n. Through the project, the w	ork is channe
Observation (technical capacity, attitude and participation) Comments: Continuous evaluation. Through the meeting: tor and the experts throughout the project, the work is cha- istakes are corrected and feedback is given to overcome oject. H - Class hours: 2 h. CH - Non-class hours: 1 h. H - Total hours: 3 h. RGM106 [!] <i>Identifica, calcula y analiza el movimiento</i>) 100% s with the annelled, the	Comments: Continuou tutor and the experts thr mistakes are corrected a project.	(No mech is evaluation oughout the and feedbac	n. Through the project, the w k is given to o	ork is channe vercome the
Dbservation (technical capacity, attitude and participation Comments: Continuous evaluation. Through the meeting: for and the experts throughout the project, the work is cha- stakes are corrected and feedback is given to overcome oject. H - Class hours: 2 h. CH - Non-class hours: 1 h. H - Total hours: 3 h. CH 106 [!] Identifica, calcula y analiza el movimiento oducirlos) 100% s with the annelled, the	Comments: Continuou tutor and the experts thr mistakes are corrected a project.	(No mech is evaluation oughout the and feedbac	n. Through the project, the w k is given to o	ork is channe vercome the
Deservation (technical capacity, attitude and participation) Comments: Continuous evaluation. Through the meeting: tor and the experts throughout the project, the work is cha- istakes are corrected and feedback is given to overcome oject. H - Class hours: 2 h. CH - Non-class hours: 1 h. H - Total hours: 3 h. CEM106 [!] Identifica, calcula y analiza el movimiento roducirlos LEARNING ACTIVITIES Development and writing of records, reports, presentation projects/work experience/challenges/case studies/experin) 100% s with the annelled, the o de partíc	Comments: Continuou tutor and the experts the mistakes are corrected a project. ulas y sólidos, así come	(No mech us evaluation oughout the and feedbac	n. Through the project, the w k is given to o	ork is channe vercome the necesarios p
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Observation (technical capacity, attitude and participation) Comments: Continuous evaluation. Through the meeting- tor and the experts throughout the project, the work is cha- istakes are corrected and feedback is given to overcome oject. H - Class hours: 2 h. CH - Non-class hours: 1 h. H - Total hours: 3 h. RGM106 [!] Identifica, calcula y analiza el movimiento roducirlos LEARNING ACTIVITIES Development and writing of records, reports, presentation projects/work experience/challenges/case studies/experin individually and/or in teams Conducting tests, giving presentations, presenting defenc checkpoints Presentation by the teacher in the classroom, in participat procedures associated with the subjects Carrying out exercises and solving problems individually a Self-assessment tests in a context of autonomous and co) 100% s with the annelled, the o de partíc as, audiovis nental inve ess, taking tory classe	Comments: Continuou tutor and the experts the mistakes are corrected a project. ulas y sólidos, así come sual material, etc. on estigations carried out examinations and/or doin s, of concepts and eams	(No mech is evaluation oughout the and feedbac o los sisten CH 10 h. g 4 h. 30 h. 10 h.	n. Through the project, the w k is given to o nas de fuerza <u>NCH</u> 6 h. 22 h.	ork is channe vercome the necesarios p TH 16 h. 4 h. 30 h. 32 h.
EVALUATION SYSTEM Observation (technical capacity, attitude and participation, Comments: Continuous evaluation. Through the meeting: tor and the experts throughout the project, the work is charaistakes are corrected and feedback is given to overcome roject. H - Class hours: 2 h. CH - Non-class hours: 1 h. H - Total hours: 3 h. RGM106 [!] Identifica, calcula y analiza el movimiento roducirlos Development and writing of records, reports, presentation projects/work experience/challenges/case studies/experin individually and/or in teams Conducting tests, giving presentations, presenting defenc checkpoints Presentation by the teacher in the classroom, in participat procedures associated with the subjects Carrying out exercises and solving problems individually a Self-assessment tests in a context of autonomous and co EVALUATION SYSTEM Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems) 100% s with the annelled, the o de partíc as, audiovis nental inve ces, taking tory classe and/or in te ntinuous le	Comments: Continuou tutor and the experts the mistakes are corrected a project. ulas y sólidos, así come sual material, etc. on estigations carried out examinations and/or doin s, of concepts and earning	(No mech Is evaluation oughout the and feedbac D los sisten CH 10 h. 30 h. 10 h. SMS pr oral tests	n. Through the project, the w k is given to o nas de fuerza NCH 6 h. 22 h. 8 h.	ork is channe vercome the necesarios p TH 16 h. 4 h. 30 h. 32 h.

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





1RGM191 (1 sem)

СН NCH ΤН LEARNING ACTIVITIES 3 h. 2 h 1 h. 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 W **EVALUATION SYSTEM** MAKE-UP MECHANISMS 33% Self-assessment (No mechanisms) Comments: Continuous evaluation. Through the meetings with the 34% Co-assessment tutor and the experts throughout the project, the work is channelled, 33% Observation (technical capacity, attitude and participation) mistakes are corrected and feedback is given to overcome the Comments: Continuous evaluation. Through the meetings with the project. tutor and the experts throughout the project, the work is channelled, mistakes are corrected and feedback is given to overcome the project. CH - Class hours: 2 h. NCH - Non-class hours: 1 h. TH - Total hours: 3 h.

CONTENTS

1. STATICS

1.1. Forces and moments Forces and components Moments. Moment of a couplel.2 Newton's laws Equilibrium of a particle Equilibrium of a rigid body1.3. Free body diagrams in 2D and 3D Isolating a mechanical s ystem Constraints Contact forces: normal and friction1.4. Centroid. Center of mass. Center of gravity. Distributed forces

2. KINEMATICS2.1. Motion in one dimension of a particle

Position, speed and acceleration2.2. Motion in two dimensions of a particle Tangential and normal comp onents2.3. Case studies: parabolic motion and circular motion2.4. Motion of connected particles

3. KINETICS

3.1. Kinetics of particles. Newton's 2nd law3.2. Kinetics of rigid solids. Newton's 2nd law3.3. Kinetics of particles. Energy methods3.4. Kinetics of rigid solids. Energy methods

LEARNING RESOURCES AND BIBLIOGRAPHY				
Learning resources	Bibliography			
Moodle Platform	https://katalogoa.mondragon.edu/janium-bin/sumario.pl?ld=2023091			
Class presentations	9120116			
Subject notes				
Slides of the subject				