

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

Goi Eskola Politeknikoa Escuela Politécnica

		GENE	ERAL IN	FORMATION					
Studies	DEGREE IN MI	ECHATRONICS ENGINE	ERING	Subject	?				
Semester	1	Course 1		Mention / Field of	???				
Character	OPTIONAL			specialisation					
Plan	2022	Modality Face	e-to-face	Language	EUSKARA/CA	STELLA	NO		
Credits	6	Hours/week 5.11		Total hours	92 class hours hours	+ 58 no	n-clas	ss hours	= <u>150 tot</u>
		203	0 AGEN	DA GOALS					
K AND ROWTH 9 ADDISTICT INVOLUTION AND/WFASTRUCTURE									
			PROFE	SSORS					
GOMEZ SA	AGARZAZU, MIF	REN							
OROBENG	OA GURIDI, DA	NEL							
AZPI-AUR1	FENETXE, JON	(SOMORROSTRO)							
BIZKARRA	LANGARA, KEI	PA							
OLAZABAL	LARRAÑAGA,	JON ANDER							
URIBE AZK	KARRETA, MAIT	ANE							
			) PREVIO	OUS KNOWLED					
		jects				ledge			
(No	o specific previou	us subjects required)		•	Vo previous kno	wledge	requi	red)	
		LE	ARNING	RESULTS					
<b>RNING RESU</b>									
104 - To know ems TR1 - To deve oming aware o act of the prop	v and apply the b lop interdisciplin of respect for hu posed solutions of	asic principles of material ary projects specific to the man rights and fundament on the SDGs - to acquire a	eir specialty tal rights, a and/or appl	/ and of gradual comp Ind analyzing and ass y basic, advanced an	plexity, - sessing the id/or	KC x	sĸ x	AB	<b>ECTS</b> 5,4 0,36
t104 - To know tems TR1 - To deve oming aware of act of the prop nt-garde, dem a high degree TR2 - To expre erent manner,	v and apply the b lop interdisciplin of respect for hup oosed solutions o onstrating the ab e of autonomy ess information, orally and in wri	ary projects specific to the man rights and fundament on the SDGs - to acquire a bility to work in multidiscip ideas and the arguments ting, based on quality info	eir specialty tal rights, a and/or appl linary team that suppo	/ and of gradual comp ind analyzing and ass y basic, advanced an is and/or undertake fu rt them in an orderly,	plexity, - sessing the id/or urther studies clear and		-	<u>AB</u>	5,4
t104 - To know tems TR1 - To deve oming aware of act of the prop nt-garde, dem a high degree TR2 - To expre erent manner,	v and apply the b lop interdisciplin of respect for hup oosed solutions o onstrating the ab e of autonomy ess information, orally and in wri	ary projects specific to the man rights and fundament on the SDGs - to acquire a bility to work in multidiscip ideas and the arguments	eir specialty tal rights, a and/or appl linary team that suppo	/ and of gradual comp ind analyzing and ass y basic, advanced an is and/or undertake fu rt them in an orderly,	plexity, - sessing the id/or urther studies clear and		x	AB	5,4 0,36
104 - To know tems TR1 - To deve oming aware of act of the prop nt-garde, dem a high degree TR2 - To expre erent manner, rces, using inc	v and apply the b lop interdisciplin of respect for hur oosed solutions o onstrating the at e of autonomy ess information, orally and in wri clusive and non-o	ary projects specific to the man rights and fundament on the SDGs - to acquire a bility to work in multidiscipl ideas and the arguments ting, based on quality info discriminatory language	eir specialty tal rights, a and/or appl linary team that suppo	/ and of gradual comp ind analyzing and ass y basic, advanced an is and/or undertake fu rt them in an orderly,	plexity, - sessing the id/or urther studies clear and		x	AB Total:	5,4 0,36
104 - To know tems TR1 - To deve oming aware of act of the prop nt-garde, dem a high degree TR2 - To expre erent manner, rces, using inc	v and apply the b lop interdisciplin of respect for hup oosed solutions o onstrating the ab e of autonomy ess information, orally and in wri	ary projects specific to the man rights and fundament on the SDGs - to acquire a bility to work in multidiscipl ideas and the arguments ting, based on quality info discriminatory language	eir specialty tal rights, a and/or appl linary team that suppo ormation, se	/ and of gradual comp ind analyzing and ass y basic, advanced an is and/or undertake fu rt them in an orderly,	plexity, - sessing the Id/or urther studies clear and from different		x	· · · ·	5,4 0,36 0,24
104 - To know tems TR1 - To deve oming aware of act of the prop nt-garde, dem a high degree TR2 - To expre erent manner, rces, using inc	v and apply the b lop interdisciplin of respect for humosed solutions of onstrating the at e of autonomy ess information, orally and in wri- clusive and non-or- ntent / SK: Skills / At	ary projects specific to the man rights and fundament on the SDGs - to acquire a bility to work in multidiscipl ideas and the arguments ting, based on quality info discriminatory language	eir specialty tal rights, a and/or appl linary team that suppo ormation, se	/ and of gradual comp ind analyzing and ass y basic, advanced an is and/or undertake fu rt them in an orderly, elf-made or obtained	plexity, - sessing the Id/or urther studies clear and from different		x	· · · ·	5,4 0,36 0,24
104 - To know tems TR1 - To deve oming aware of act of the prop nt-garde, dem a high degree TR2 - To expre erent manner, rcces, using inc Knowledge or Con	v and apply the b lop interdisciplin of respect for hur oosed solutions of onstrating the at e of autonomy ess information, orally and in wri clusive and non-o	ary projects specific to the man rights and fundament on the SDGs - to acquire a bility to work in multidiscipl ideas and the arguments ting, based on quality info discriminatory language	eir specialty tal rights, a and/or appl linary team that suppo ormation, se	/ and of gradual comp ind analyzing and ass y basic, advanced an is and/or undertake fu rt them in an orderly, elf-made or obtained	plexity, - sessing the Id/or urther studies clear and from different	x	x	· · · ·	5,4 0,36 0,24 <b>6</b>
t104 - To know terms TR1 - To deve oming aware of act of the prop nt-garde, dem a high degree erent manner, rces, using inc Knowledge or Col RGJ194 (1 se EARNING AC Development a	v and apply the b lop interdisciplin of respect for hur oosed solutions of onstrating the at e of autonomy ess information, orally and in wri clusive and non-of intent / SK: Skills / At em) CTIVITIES ind writing of rec experience/challe	ary projects specific to the man rights and fundament on the SDGs - to acquire a bility to work in multidiscipl ideas and the arguments ting, based on quality info discriminatory language	eir specialty tal rights, a and/or appl linary team that suppo ormation, se	y and of gradual comp ind analyzing and ass y basic, advanced an is and/or undertake fu rt them in an orderly, elf-made or obtained	plexity, - sessing the id/or urther studies clear and from different <b>FS</b>	x	x x	Total:	5,4 0,36 0,24 6
t104 - To know terms TR1 - To deve oming aware of act of the prop nt-garde, dem a high degree TR2 - To expre erent manner, rcces, using inco Knowledge or Col RGJ194 (1 se EARNING AC Development a rojects/work e	v and apply the b lop interdisciplin of respect for hur oosed solutions of onstrating the at e of autonomy ess information, orally and in wr clusive and non-of ntent / SK: Skills / At em) CTIVITIES Ind writing of rec xperience/challe l/or in teams	ary projects specific to the man rights and fundament on the SDGs - to acquire a bility to work in multidiscipl ideas and the arguments a ting, based on quality info discriminatory language 3: Abilities SECONDA	eir specialty tal rights, a and/or appl linary team that suppo ormation, se	y and of gradual comp ind analyzing and ass y basic, advanced an is and/or undertake fu rt them in an orderly, elf-made or obtained	plexity, - sessing the id/or urther studies clear and from different <b>FS</b>	x	x x	Total:	5,4 0,36 0,24 6
104 - To know         TR1 - To deve         oming aware of         act of the prop         nt-garde, dem         a high degree         rran - To expre         erent manner,         rcces, using income         Knowledge or Come         RGJ194       (1 set         EARNING AC         Development a         rojects/work e         adividually and         Eventors on the         omputer exerct	v and apply the b lop interdisciplin of respect for hur oosed solutions of onstrating the at e of autonomy ess information, orally and in wri- clusive and non-of ntent / SK: Skills / At em) CTIVITIES Ind writing of rec xperience/challed //or in teams SYSTEM completion of ex- cises, simulation	ary projects specific to the man rights and fundament on the SDGs - to acquire a bility to work in multidiscipl ideas and the arguments a ting, based on quality info discriminatory language 3: Abilities SECONDA	ARY LEA	y and of gradual comp ind analyzing and ass y basic, advanced an is and/or undertake fur it them in an orderly, elf-made or obtained <b>RNING RESULT</b>	plexity, - sessing the id/or urther studies clear and from different <b>FS</b> <b>CH</b> 1 h. t <b>ANISMS</b> ( <i>No meci</i>	x x 21	x x CH h.	Total:	5,4 0,36 0,24 6

RGJ1113 [!] Identifica los componentes y describe las funciones que cumplen en un sistema de potencia fluidica e interpreta los circuitos y diagramas en los que estos se representan



# Goi Eskola Politeknikoa | Mondragon Unibertsitatea

Course: 2024 / 2025 - Course planning

LEARNING ACTIVITIES			СН	NCH	ТН		
Development and writing of records, reports, presentation projects/work experience/challenges/case studies/experin individually and/or in teams		4 h.	3 h.	7 h.			
Conducting tests, giving presentations, presenting defend checkpoints	g examinations and/or doing	2 h.	10 h.	12 h.			
Presentation by the teacher in the classroom, in participat procedures associated with the subjects	Presentation by the teacher in the classroom, in participatory classes, of concepts and						
Carrying out exercises and solving problems individually	and/or in t	teams	8 h.	7 h.	15 h.		
Practical work in workshops and/or laboratories, individua	Practical work in workshops and/or laboratories, individually and/or in teams			6 h.	16 h.		
EVALUATION SYSTEM	EVALUATION SYSTEM W MAKE-UP MECHAI						
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	Reports on the completion of exercises, case studies, 27% Individual written an coding/programming			nd/or oral tests or individual g tests ake exam is needed, the mark will be			
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			75% retał	Ke			
Individual written and/or oral tests or individual coding/programming tests							
CH - Class hours: 40 h. NCH - Non-class hours: 28 h. TH - Total hours: 68 h.							

1RGJ190 (1 sem)						
LEARNING ACTIVITIES			СН	NCH	ТН	
Carrying out/resolving projects/challenges/cases, etc. to p interdisciplinary contexts, real and/or simulated, individua EVALUATION SYSTEM			2 h.	1 h.	3 h.	
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%	Comments: With the p	(No mech project of the	,	ester	
CH - Class hours: 2 h. NCH - Non-class hours: 1 h. TH - Total hours: 3 h.						

### RGJ1112 [!] Conoce y aplica las técnicas y aparatos de medida y control utilizados en la industria manufacturera

LEARNING ACTIVITIES			СН	NCH	ТН
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.
Presentation by the teacher in the classroom, in participa procedures associated with the subjects	2 h.	1 h.	3 h.		
Practical work in workshops and/or laboratories, individua	6 h.	3 h.	9 h.		
EVALUATION SYSTEM W MAKE-UP MECHAN					
EVALUATION SYSTEM	W	MAKE-UP MECHAN	IISMS		
EVALUATION SYSTEM Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	<b>W</b> 90%	MAKE-UP MECHAN Individual written and coding/programming Comments: If a retal	d/or oral tests tests		k will be

écnica

CH - Class hours: 11 h. NCH - Non-class hours: 4 h. TH - Total hours: 15 h.

### 1RGJ193 (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 100% Reports on the completion of exercises, case studies, (No mechanisms) computer exercises, simulation exercises, laboratory Comments: Revision and correction of the written report of the exercises, term projects, challenges and problems semester project CH - Class hours: 2 h. NCH - Non-class hours: 1 h. TH - Total hours: 3 h.

1RGJ191 (1 sem)						
LEARNING ACTIVITIES			СН	NCH	ТН	
Carrying out/resolving projects/challenges/cases, etc. to p interdisciplinary contexts, real and/or simulated, individual			2 h.	1 h.	3 h.	
EVALUATION SYSTEM	W	MAKE-UP MECHANI	SMS			
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	100%	Comments: With the	(No mech project of the	,	ster	
CH - Class hours: 2 h. NCH - Non-class hours: 1 h. TH - Total hours: 3 h.						

1RGJ192 (1 sem)								
LEARNING ACTIVITIES			СН	NCH	ТН			
Carrying out/resolving projects/challenges/cases, etc. to pinterdisciplinary contexts, real and/or simulated, individuation			2 h.	1 h.	3 h.			
EVALUATION SYSTEM	W	MAKE-UP MECHAN	ISMS					
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems (No mechanisms)								
CH - Class hours: 2 h. NCH - Non-class hours: 1 h. TH - Total hours: 3 h.								



Course: 2024 / 2025 - Course planning

**RCJ1111** [!] Distingue entre los diferentes tipos de material entendiendo los fundamentos de ciencia, tecnología y química de materiales, comprendiendo la relación entre la microestructura, la síntesis o procesado y las propiedades de los materiales

LEARNING ACTIVITIES		СН	NCH	тн	
Development and writing of records, reports, presentation projects/work experience/challenges/case studies/experin individually and/or in teams	3 h.	2 h.	5 h.		
Conducting tests, giving presentations, presenting defend checkpoints	2 h.	8 h.	10 h.		
Presentation by the teacher in the classroom, in participa procedures associated with the subjects	es, of concepts and	19 h.	6 h.	25 h.	
Carrying out exercises and solving problems individually	and/or in t	teams	4 h.	2 h.	6 h.
Practical work in workshops and/or laboratories, individua	ally and/or	in teams	4 h.	2 h.	6 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 Comments: If a retake			ts		k will be
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				'	
Individual written and/or oral tests or individual coding/programming tests					
CH - Class hours: 32 h. NCH - Non-class hours: 20 h. IH - Total hours: 52 h.					

## CONTENTS

The Mechanical Technology course is made up of three well-differentiated sections:1. MATERIALS- Metallic alloys\* Steels and castings and their designations.\* Heat and surface treatments of steels.\* Non-ferrous metals- Plastics\* Classification and structure\* Mechanical properties\* Physical properties- Tests\* Mechan ical tests\* Non-destructive testing2. METROLOGY- Accuracy- Measuring elements: rulers, calipers, micromet ers, dial indicators, gauges and standards- Dial gauges, gauges and standards- Roughness meters3. FLUIDS- Fluids applications in industry- Fluids for power transmission applications (hydraulics and pneumatics). - Actuators- Valves and pumps- Compressed air installations- Hydraulic and pneumatic accumulator- Hydraul

ic circuits of industrial machines (Interpretation and design)

### LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
<ul> <li>[!] Consultas en páginas web relacionadas con el tema</li> <li>[!] Laboratorios</li> <li>[!] Plataforma Moodle</li> <li>[!] Proyección de videos</li> <li>[!] Realización de prácticas en laboratorio</li> <li>[!] Transparencias de la asignatura</li> </ul>	<ul> <li>CALLISTER Jr., W.D. 2011. Materialen Zientzia eta IngeniaritzaHastapenak. Euskal Herriko Unibertsitateko Argitalpen Zerbitzua</li> <li>ILANGO, S., SOUNDARARAJAN, V. 2007. Introduction to hydraulicsand pneumatics. PHI Learning Pvt. Ltd</li> <li>RABIE, M. 2009. Fluid Power Engineering. McGraw-Hill.</li> <li>MORO, M. 2017. Fundamentos de Metrología Dimensional.Marcombo Universitari</li> <li>LORIENTE, O; GONZALEZ, E., TRULL, O. 2013. Verificación</li> </ul>
	yMetrología. Libro de Prácticas. Lulu
	http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_ln k.pl?grupo=MECATRONICA11&ejecuta=30&_ST