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Mondragon Unibertsitatea Goi Eskola Politeknikoa Escuela Politécnica

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[GJł	(101] FOUNDATIO					
	GEN	ERAL IN	FORMATION			
Studies DEGREE II	N MECHATRONICS ENGINE	ERING	Subject	?		
Semester 2	Course 1		Mention / Field of			
Character OPTIONAL			specialisation			
Plan 2020	Modality Face	e-to-face	Language	EUSKARA/CAS	TELLANO	
Credits 6	Hours/week 5		Total hours	90 class hours - hours	⊦ 60 non-class	hours = <u>150 to</u>
		PROFE	SSORS			
ALMANDOZ LARRALD	E, GAIZKA					
SEGUROLA ECHAVE,	MIREN EDURNE					
	REQUIRED) PREVIO		GE		
	Subjects			Knowl	edge	
(No specific pre	evious subjects required)		()	No previous knov	vledge require	d)
		SKII	LLS			
ERIFICA SKILLS						
PECIFIC						
JCE24 - To know the fundar	nentals of electronics					
ENERAL	timicing activition of accombly	commissi	oning occietance and	I maintonanco ol	facilities mad	hinory and
dustrial mechatronic system	is	, commissio	assistance and			annery, anu
ICTR2 - To be able to unde	rstand and apply knowledge to	o problem s	solving in complex wa	ork situations or s	pecialised and	professional
avironments calling for creat	tive and innovative ideas, usir	ng self-deve	eloped arguments and	d procedures;		
CB5 - To have developed l	earning abilities required to er	mbark on s	ubsequent studies wi	th a high level of	autonomy.	
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Course: 2022 / 2023 - Course planning

computer practical work, simulation practical work, laboratory practical work, term projects, end of degree project, master's thesis, challenges and problems Comments: Continuous assessment. Retake is not foreseen.

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

RGJ191 They use the right methodology to find solutions to problems and to develop projects: analyse problems properly, look for meaningful information to face them and propose solutions. LEARNING ACTIVITIES СН NCH тн Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in 2 h 4 h 2 h interdisciplinary contexts, real and/or simulated, individually and/or in teams **EVALUATION SYSTEM** w MAKE-UP MECHANISMS Observation (technical capacity, attitude and participation) 100% (No mechanisms) Comments: Continuous assessment. Retake is not foreseen. CH - Class hours: 2 h. NCH - Non-class hours: 2 h. TH - Total hours: 4 h.

RCJ192 They use the right methodology to find solutions to problems and to develop projects: analyse problems properly, look for meaningful information to face them and propose solutions.

Carrying out/resolving projects/challenges/cases, etc. to pro interdisciplinary contexts, real and/or simulated, individually	ovide so / and/or	lutions to problems in in teams	2 h.	2 h.	4 h.
EVALUATION SYSTEM	W	MAKE-UP MECHAN	SMS		
Self-assessment	30%		(No mech	anisms)	
Co-assessment	35%	Comments: Continue	us assessm	ent. Retake is	not foreseen
Observation (technical capacity, attitude and participation)	35%				
CH - Class hours: 2 h.					
ICH - Non-class hours: 2 h. TH - Total hours: 4 h					

RGJ1311 They analyse analogue circuits with simplif	fied mode	els of real transistors a	nd operationa	al amplifiers.	
LEARNING ACTIVITIES			СН	NCH	тн
Computer simulation exercises, individually and/or in teams			4 h.	4 h.	8 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects			18 h.	12 h.	30 h.
Carrying out exercises and solving problems individually and/or in teams			8 h.	6 h.	14 h.
EVALUATION SYSTEM	w	MAKE-UP MECHAN	NISMS		
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 Comments: Compulsory retake if the mark on the written tes 5. Anyone taking the make-up will be assessed 25%* Checkpo 75%* Make-up.			e written test is

CH - Class hours: 30 h. NCH - Non-class hours: 22 h. TH - Total hours: 52 h.

LEARNING ACTIVITIES			СН	NCH	ТН	
Conducting tests, giving presentations, presenting defences, taking examinations and/or do checkpoints			ng 20 h.	15 h.	35 h.	
Carrying out/resolving projects/challenges/cases, etc. to p interdisciplinary contexts, real and/or simulated, individua	provide so Ily and/or	lutions to problems in in teams	4 h.	4 h.	8 h.	
Carrying out exercises and solving problems individually	and/or in t	eams	6 h.	4 h.	10 h.	
EVALUATION SYSTEM	w	MAKE-UP MECHANI	SMS			
Reports on the completion of exercises, case studies, 20% computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems		Individual written and/or oral tests or individual coding/programming tests				
Individual written and/or oral tests or individual coding/programming tests	5. Anyone taking the r 75%* Make-up.		make-up will be assessed 25%* Checkpoin			
H - Class hours: 30 h.						
CH - Non-class hours: 23 h. H - Total hours: 53 h. CJ1313 They know how to design and size power a plication	mplifiers,	power supplies and co	nditioning c	ircuits require	ed for a give	
CH - Non-class hours: 23 h. H - Total hours: 53 h. RGJ1313 They know how to design and size power a oplication	mplifiers,	power supplies and con	nditioning c CH 22 h	ircuits require	ed for a given	
CH - Non-class hours: 23 h. H - Total hours: 53 h.	mplifiers, ns, audiov nental inv	power supplies and con sual material, etc. on estigations carried out	nditioning c CH 22 h.	ircuits require <u>NCH</u> 8 h.	ed for a given TH 30 h.	
CH - Non-class hours: 23 h. H - Total hours: 53 h.	mplifiers, is, audiov nental inv W	power supplies and con sual material, etc. on estigations carried out MAKE-UP MECHANI	nditioning c CH 22 h. SMS	ircuits require <u>NCH</u> 8 h.	ed for a given TH 30 h.	
CH - Non-class hours: 23 h. H - Total hours: 53 h. RGJ1313 They know how to design and size power a oplication LEARNING ACTIVITIES Development and writing of records, reports, presentation projects/work experience/challenges/case studies/experir individually and/or in teams EVALUATION SYSTEM Presentation and defence of exercises, case studies,	mplifiers, ns, audiov nental inv <u>w</u> 100%	power supplies and con sual material, etc. on estigations carried out	nditioning c CH 22 h. SMS (No mech	ircuits require <u>NCH</u> 8 h. anisms)	ed for a give TH 30 h.	
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CH - Non-class hours: 23 h. 1 - Total hours: 53 h. CGJ1313 They know how to design and size power a pplication LEARNING ACTIVITIES Development and writing of records, reports, presentatior projects/work experience/challenges/case studies/experin ndividually and/or in teams EVALUATION SYSTEM Presentation and defence of exercises, case studies, computer practical work, simulation practical work, aboratory practical work, term projects, end of degree project, master's thesis, challenges and problems H - Class hours: 22 h. CH - Non-class hours: 8 h. 1 - Total hours: 30 h.	mplifiers, as, audiov nental inv <i>W</i> 100%	power supplies and con sual material, etc. on estigations carried out <u>MAKE-UP MECHANI</u> Comments: Continuo	nditioning c CH 22 h. SMS (No mech us assessme	ircuits require <u>NCH</u> 8 h. anisms) ent, no retake f	ed for a given	

- 2. Intrinsic semiconductors
- 3. Extrinsic semiconductors
- 2. Diode theory
- 1. Forward and reverse bias
- 2. Diode curve and approximations
- 3. Datasheet data

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Course: 2022 / 2023 - Course planning

- 3. Diodes in circuits
- 1. Half wave rectifiers
- 2. Full wave rectifiers
- 3. Ideal transformer
- 4. Power supplies
- 4. Transistors
- 1. Characteristics and biasing
- 2. Characteristic curve
- 3. Datasheet data
- 5. Power amplifiers
- 6. Operational amplifiers
- 1. Equivalent circuits
- 2. Circuits composed by operational amplifiers

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
Topic related web quires	MALVINO, A., BATES, D.J. 2006. Electronic Principles. McGraw-Hill
Moodle Platform	Education
Lab practical training	MUHAMMAD, H. R. 2011. Microelectronic Circuits: Analysis and
Subject notes	Design. Cengage Learning
Computer practical training	http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_ln k.pl?grupo=MECATRONICA12&ejecuta=30&_ST