

Politeknikoa Escuela Politécnica Course: 2024 / 2025 - Course planning

[GJK205] M	ODELLING	AND SIMU	LATION OF [DYNAMIC	SYS	TEN	IS	
	G	ENERAL IN	FORMATION					
Studies DEGREE IN MEC	HATRONICS EN	GINEERING	Subject	?				
Semester 1	Course	3	Mention / Field of					
Character COMPULSORY			specialisation					
Plan 2022	Modality	Face-to-face	Language	EUSKARA/CA	ASTELLANO/ENGLISH			
Credits 4,5	Hours/week	3.53	Total hours	63.5 class hour hours	rs + 49	non-c	lass hours	6 = <u>112.5</u>
		2030 AGEN	DA GOALS					
HEADON BREFORM B RECENT INDEX NON COMMON COMPANY A REFORMANCE OF ANY A REFORMANCE OF A								
		PROFES	SSORS					
ALACANO LOITI, ARGIÑE								
PANIAGUA AMILLANO, JULE	IN							
	REQUI	RED PREVIO		GE				
Subjects			Knowledge					
HYSICS I			(No previous knowledge required)					
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UNDATIONS OF ELECTRICAL E	NGINEERING						,	
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UNDATIONS OF ELECTRICAL E THEMATICS APPLIED TO ENGI ARNING RESULTS R301 - To know and master the m	NGINEERING NEERING odeling and simul	LEARNING ation of dynamic	RESULTS		КС	SK x	AB	ECTS 3,78
UNDATIONS OF ELECTRICAL E THEMATICS APPLIED TO ENGI ARNING RESULTS R301 - To know and master the m RTR1 - To develop interdisciplinary	NGINEERING NEERING odeling and simul / projects specific	LEARNING ation of dynamic to their specialty	RESULTS systems and of gradual comp	plexity, -	КС	SK x x	, АВ	ECTS 3,78 0,4
UNDATIONS OF ELECTRICAL E THEMATICS APPLIED TO ENGI ARNING RESULTS R301 - To know and master the m CTR1 - To develop interdisciplinary coming aware of respect for huma avart of the proposed solutions on	NGINEERING NEERING odeling and simul / projects specific in rights and funda the SDGs - to acc	LEARNING ation of dynamic to their specialty amental rights, a	RESULTS systems and of gradual comp nd analyzing and ass (basic, advanced an	blexity, - sessing the	кс	SK x x	AB	ECTS 3,78 0,4
UNDATIONS OF ELECTRICAL E THEMATICS APPLIED TO ENGI ARNING RESULTS R301 - To know and master the m RTR1 - To develop interdisciplinary coming aware of respect for huma bact of the proposed solutions on part-garde, demonstrating the abili	NGINEERING NEERING odeling and simul / projects specific in rights and funda the SDGs - to acq by to work in multi	LEARNING ation of dynamic to their specialty amental rights, a juire and/or apply disciplinary team	RESULTS systems and of gradual comp nd analyzing and ass y basic, advanced an s and/or undertake fi	olexity, - sessing the d/or utber studies	КС	SK x x	AB	ECTS 3,78 0,4
UNDATIONS OF ELECTRICAL E THEMATICS APPLIED TO ENGI ARNING RESULTS R301 - To know and master the m RTR1 - To develop interdisciplinary coming aware of respect for huma bact of the proposed solutions on ant-garde, demonstrating the abilit h a high degree of autonomy	NGINEERING NEERING odeling and simul / projects specific in rights and funda the SDGs - to acq ty to work in multic	LEARNING ation of dynamic to their specialty amental rights, a juire and/or apply disciplinary team	RESULTS systems and of gradual comp nd analyzing and ass basic, advanced an s and/or undertake fu	olexity, - sessing the d/or urther studies	КС	SK x x	AB	ECTS 3,78 0,4
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UNDATIONS OF ELECTRICAL E THEMATICS APPLIED TO ENGI ARNING RESULTS R301 - To know and master the m RTR1 - To develop interdisciplinary coming aware of respect for huma bact of the proposed solutions on ant-garde, demonstrating the abilit h a high degree of autonomy RTR2 - To express information, ide herent manner, orally and in writin urces, using inclusive and non-dis	odeling and simul projects specific in rights and fundat the SDGs - to acq ty to work in multion eas and the argum g, based on qualit criminatory langua	LEARNING ation of dynamic to their specialty amental rights, a juire and/or apply disciplinary team nents that support y information, se age	RESULTS systems of gradual comp nd analyzing and ass y basic, advanced an s and/or undertake fu t them in an orderly, off-made or obtained	blexity, - sessing the d/or urther studies clear and from different	КС	SK x x x	AB	ECTS 3,78 0,4
UNDATIONS OF ELECTRICAL E THEMATICS APPLIED TO ENGI ARNING RESULTS R301 - To know and master the m RTR1 - To develop interdisciplinary coming aware of respect for huma pact of the proposed solutions on ant-garde, demonstrating the abilit h a high degree of autonomy RTR2 - To express information, ide perent manner, orally and in writin urces, using inclusive and non-dis	Odeling and simul odeling and simul projects specific in rights and funda the SDGs - to acq ty to work in multion eas and the argum g, based on qualit criminatory langua	LEARNING ation of dynamic to their specialty amental rights, a juire and/or apply disciplinary team tents that suppor y information, se age	RESULTS systems and of gradual comp nd analyzing and ass y basic, advanced an s and/or undertake fu t them in an orderly, elf-made or obtained	olexity, - sessing the d/or urther studies clear and from different	КС	SK x x	AB Total:	ECTS 3,78 0,4 0,32 4,5
UNDATIONS OF ELECTRICAL E THEMATICS APPLIED TO ENGI ARNING RESULTS R301 - To know and master the m RTR1 - To develop interdisciplinary coming aware of respect for huma bact of the proposed solutions on ant-garde, demonstrating the abilit h a high degree of autonomy RTR2 - To express information, ide terent manner, orally and in writin urces, using inclusive and non-dis Knowledge or Content / SK: Skills / AB: A	odeling and simul projects specific in rights and funda the SDGs - to acq ty to work in multion eas and the argum g, based on qualit criminatory langua	LEARNING ation of dynamic to their specialty amental rights, a uire and/or apply disciplinary team tents that support y information, se age	RESULTS systems or and of gradual comp nd analyzing and ass y basic, advanced an s and/or undertake fu t them in an orderly, off-made or obtained	blexity, - sessing the d/or urther studies clear and from different	КС	SK x x	AB Total:	ECTS 3,78 0,4 0,32 4,5

1.- Introduction to dynamic systems and control systems1.1 Introduction1.2 Classification of dynamic systems1.3 Modeling of dynamic systems1.4 Objectives and organization of the course2.- Modeling of mechanical systems2.1 Introduction2.2 Laws of mechanical elements2.3 Translational mechanical systems2.4 Rotational mechanical systems3.- Modeling of electrical and electromechanical systems3.1 Introduction3.2 Laws of electrical elements3.3 Electrical systems3.4 Electromechanical systems4.- Models for dynamic systems4.1 Int roduction4.2 Input-Output Equations4.3 Transfer functions4.4 Block diagrams4.5 Input functions5.- Numeric al Simulation of Dynamic Systems5.1 Introduction5.2 System response using MATLAB Commands5.3 Development of simulations using Simulink5.4 Simulation of linear systems using Simulink6.- Analytical solution of dy namic systems6.1 Introduction6.2 Analytical solution of linear differential equations 6.3.6.3 Response of first order systems6.4 Response of second order systems7.- Analysis of systems using Laplace transform7.3 Inverse Laplace transform7.4 Analysis of dynamical systems by mea ns of Laplace transform

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
[!] Plataforma Moodle	Craig A. Kluever, Dynamic systems: Modeling, Simulation
[!] Transparencias de la asignatura	andControl, 1st edition (2015), ISBN: 978-1-118-28945-7
[!] Programas	http://katalogoa.mondragon.edu/janium-bin/janium_login_opac_re_ln k. pl?grupo=MECATRONICA31&ejecuta=15&_ST