[GFE004] Electrotechnics

GENERAL INFORMATION

Studies	DEGREE IN ENGINEERING PHYSICS APPLIED TO INDUSTRY			**Subject**	Industrial Electronics
Semester	1	**Course**	4	**Mention / Field of specialisation**	???
Character	OPTIONAL				
Plan	2022	**Modality**	Face-to-face	**Language**	CASTELLANO
Credits	4,5	**Hours/week**	0	**Total hours**	54 class hours + 58.5 non-class hours = **112.5 total hours**

2030 AGENDA GOALS

PROFESSORS

MORENO LA FUENTE, YERAI

REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
LINEAR ALGEBRA	*(No previous knowledge required)*
Electromagnetism II	

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
GFR308 - Understand and apply the principles of circuit theory and electrical machines		x		4,5
			Total:	4,5

KC: Knowledge or Content / SK: Skills / AB: Abilities

SECONDARY LEARNING RESULTS

RGF421 **[!]** ***Analiza máquinas de corriente alterna y lo aplica a la selección del motor y los componentes necesarios para implementar la maniobra eléctrica necesaria para la puesta en marcha del motor asíncrono***

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	3 h.	2 h.	5 h.
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning	3 h.	6 h.	9 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.		2 h.
Carrying out exercises and solving problems individually and/or in teams	2 h.	4 h.	6 h.
Tutoring sessions and monitoring of training activities	4 h.		4 h.
Reading and personal and/or shared analysis of relevant and current publications (books, articles, catalogues, etc.) related to the speciality	3 h.	4 h.	7 h.
Self-assessment tests in a context of autonomous and continuous learning	3 h.	4 h.	7 h.

EVALUATION SYSTEM	W
Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term projects, challenges and problems	10%
Individual written and/or oral tests or individual coding/programming tests	30%
Self-assessment	60%

MAKE-UP MECHANISMS

Individual written and/or oral tests or individual coding/programming tests

CH - Class hours: 20 h.
NCH - Non-class hours: 20 h.
TH - Total hours: 40 h.

RGF419 **[!]** ***Analiza y dimensiona transformadores monofásicos, trifásicos, y transformadores de medida***

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	3 h.	3 h.	6 h.
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning	5 h.	5 h.	10 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	3 h.	3 h.	6 h.
Carrying out exercises and solving problems individually and/or in teams	3 h.	3 h.	6 h.
Tutoring sessions and monitoring of training activities	4 h.	3 h.	7 h.
Reading and personal and/or shared analysis of relevant and current publications (books, articles, catalogues, etc.) related to the speciality	3 h.	4 h.	7 h.
Self-assessment tests in a context of autonomous and continuous learning	4 h.	4 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	10%	Individual written and/or oral tests or individual coding/programming tests
Individual written and/or oral tests or individual coding/programming tests	30%	
Self-assessment	60%	

CH - Class hours: 25 h.
NCH - Non-class hours: 25 h.
TH - Total hours: 50 h.

RGF420 **[!]** ***Analiza máquinas de corriente continua y selecciona la máquina apropiada para una aplicación real***

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.
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning		5 h.	5 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.		2 h.
Carrying out exercises and solving problems individually and/or in teams	2 h.	1 h.	3 h.
Tutoring sessions and monitoring of training activities	2 h.	1,5 h.	3,5 h.
Reading and personal and/or shared analysis of relevant and current publications (books, articles, catalogues, etc.) related to the speciality	1 h.	1 h.	2 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	10%	Individual written and/or oral tests or individual coding/programming tests
Individual written and/or oral tests or individual coding/programming tests	30%	
Self-assessment	60%	

CH - Class hours: 9 h.
NCH - Non-class hours: 13,5 h.
TH - Total hours: 22,5 h.

CONTENTS

1. THREE-PHASE NETWORKS2. TRANSFORMERSSingle-phase transformersTransformer characterizationThree-phase transformersTransformer lab practice3. ASYNCHRONOUS MACHINESOperating principlesTypes of machinesCharacterizationSteady-state analysis4. SYNCHRONOUS GENERATORSOperating principlesCharacterizationSteady-state regi

meGrid-connected alternators / Island-mode alternatorsCharacterization of a synchronous machine5. DC MACH INESOperating principlesTypes of machinesCharacterizationSteady-state analysis

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
Subject notes	Chapman, S.J. Máquinas Eléctricas. MacGraw Hill. 1987
Moodle Platform	Fraile Mora, Jesús. Máquinas Eléctricas. UPM. 1993
Specific Master Software	