[MHK301] ELECTRIC TECHNOLOGY

GENERAL INFORMATION

Studies	UNIVERSITY MASTER IN INDUSTRIAL ENGINEERING			**Subject**	?
Semester	1	**Course**	1	**Mention / Field of specialisation**	
Character	COMPULSORY				
Plan	2025	**Modality**	Face-to-face	**Language**	CASTELLANO
Credits	4	**Hours/week**	2.22	**Total hours**	40 class hours + 60 non-class hours = **100 total hours**

2030 AGENDA GOALS



PROFESSORS

EGUREN ALUSTITZA, IMANOL
RIVERA TORRES, CHRISTIAN ALEJANDRO

REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
(No specific previous subjects required)	*(No previous knowledge required)*

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
MH2501 - Knowledge, analysis and design of electric power generation, transmission and distribution systems.		x		2,68
MH2507 - Design electronic and industrial instrumentation systems		x		0,84
MH2526 - Apply acquired knowledge and problem-solving skills in new, unfamiliar or changing environments within broader (or multidisciplinary) contexts related to their area of study.		x		0,08
MH2527 - Demonstrate the ability to integrate knowledge and deal with the complexity of formulate judgments based on incomplete or limited information, including reflections on the SDGs, human rights and fundamental rights, and on social, health and safety, environmental, economic and industrial implications and responsibilities.		x		0,08
MH2528 - Communicate its conclusions and the ultimate knowledge and rationale behind them to specialized and non-specialized audiences in a clear and unambiguous manner.		x		0,16
MH2529 - Possess the learning skills that will enable them to continue studying in a manner that will be largely self-directed or autonomous.		x		0,08
MH2530 - Work with people, involving them and leading them in a dynamic directed towards a common objective that includes reflection on their ethical and social responsibility, with a global vision of the work to be carried out and the characteristics required (quality, deadlines, etc.), assuming responsibility for the decisions taken.		x		0,08
			Total:	4

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

SECONDARY LEARNING RESULTS

RMH117 **[!]** ***Formula las relaciones entre magnitudes mecánicas y electromagnéticas en máquinas eléctricas.***

LEARNING ACTIVITIES	CH	NCH	TH
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning		8 h.	8 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.		2 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	6 h.		6 h.
Carrying out exercises and solving problems individually and/or in teams	5 h.	10 h.	15 h.
Practical work in workshops and/or laboratories, individually and/or in teams	2 h.	6 h.	8 h.

EVALUATION SYSTEM	W
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	80%

MAKE-UP MECHANISMS

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

CH - Class hours: 15 h.
NCH - Non-class hours: 24 h.
TH - Total hours: 39 h.

RMH119 **[!]** ***Define, diseña y analiza los sistemas electrónicos de conversión de la energía eléctrica.***

LEARNING ACTIVITIES	CH	NCH	TH
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning		10 h.	10 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	1 h.		1 h.
Computer simulation exercises, individually and/or in teams	5 h.	10 h.	15 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	4 h.		4 h.
Practical work in workshops and/or laboratories, individually and/or in teams	3 h.		3 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	100%	Reports on the completion of exercises, case studies, 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

CH - Class hours: 13 h.
NCH - Non-class hours: 20 h.
TH - Total hours: 33 h.

RMH118 **[!]** ***Define los parámetros fundamentales de la generación de energía eléctrica, así como su transporte y distribución.***

LEARNING ACTIVITIES	CH	NCH	TH
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning		6 h.	6 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	2 h.		2 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	4 h.		4 h.
Carrying out exercises and solving problems individually and/or in teams	4 h.	10 h.	14 h.
Practical work in workshops and/or laboratories, individually and/or in teams	2 h.		2 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	20%	Individual written and/or oral tests or individual coding/programming tests
Individual written and/or oral tests or individual coding/programming tests	80%	

CH - Class hours: 12 h.
NCH - Non-class hours: 16 h.
TH - Total hours: 28 h.

CONTENTS

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

[!] *Plataforma Moodle*
[!] *Transparencias de la asignatura*
[!] *Laboratorios*
[!] *Realización de prácticas en ordenador*
[!] *Realización de prácticas en laboratorio*
[!] *Software específico de la titulación*

Bibliography

Fraile, J. Máquinas Eléctricas. Mc Graw Hill. 5ª Edición. 2003. ISBN84-481-3913-5

Wildi, T. Máquinas Eléctricas y Sistemas de Potencia. Prentice Hall. 6ª Edición. 2007. ISBN 970-26-0814-7

Barrado, A. Problemas de Electrónica de Potencia. Pearson. Prentice Hall. 2007. ISBN 978-84-205-4652-0

Hart, Daniel W. Electrónica de Potencia. 2001. ISBN 978-8420531793

Chapman, S. J. Máquinas Eléctricas. McGraw Hill. ISBN 978-6071507242