		Teachin	g Guide		
	Identifying	g Data			2022/23
Subject (*)	Electric Mobility			Code	730547010d
Study programme	Máster Universitario en Eficiencia				
		Descr	iptors		
Cycle	Period	Ye	ar	Туре	Credits
Official Master's Degree	e 2nd four-month period	Fir	rst	Optional	3
Language	SpanishGalician				
Teaching method	Non-attendance				
Prerequisites					
Department	Enxeñaría Industrial				
Coordinador	Chouza Gestoso, Jesus Diego E-mail jesus.chouza@udc.es			udc.es	
Lecturers	Chouza Gestoso, Jesus Diego E-mail jesus.chouza@udc.es			udc.es	
	Méndez Sanmartín, Cristian cristian.mendez@udc.es			@udc.es	
Web	cas-saml.udc.es/login?service=http	ps%3A%2F%2	2Fcampusvirtual.udd	gal%2Flogin%2Fin	dex.php
General description	The different drive systems used in	n electric mobi	ility are studied, ider	tifying the advantage	es and analyzing the necessary
	control systems.				
	The characteristics and operation of	of the different	t types of machines	used in wind turbine	s are studied.
	You can access the teaching mate	rial through th	e Moodle platform,	and attend classes v	irtually through TEAMS

	Study programme competences
Code	Study programme competences
A1	CE1 - Apply methodologies and regulations for efficient energy management
A2	CE2 - Analyze and implement energy saving and efficiency measures in the industrial, tertiary and residential sectors
A5	CE5 - Analyze energy consumption and its associated costs
A13	CE13 - Analyze, apply and optimize energy use systems
A15	CE15 - Develop a project in the scope of the master
A16	CE16 - Search, analyze, identify and apply new sources of electrical energy or new electricity management techniques under criteria such
	as efficiency, sustainability or cooperation, as well as the use of these on new applications
В9	CG4 - Extract, interpret and process information, from different sources, for use in the study and analysis
B11	CG6 - Acquire new knowledge and skills related to the professional field of the master's degree
B12	CG7 - Critically analyze your own internship experience
B13	CG8 - Apply theoretical knowledge to practice
B16	CG11 - Evaluate the application of emerging technologies in the field of energy and the environment
B17	CG12 - Develop the ability to advise and guide on the best way or channel to optimize energy resources in relation to renewable energies
B18	CG13 - Pose and solve problems, interpret a set of data and analyze the results obtained; in the field of energy efficiency and
	sustainability
C2	CT2 - Master the oral and written expression and comprehension of a foreign language
C4	CT4 - Develop for the exercise of a respectful citizenship with the democratic culture, human rights and the gender perspective
C5	CT5 - Understand the importance of entrepreneurial culture and know the means available to entrepreneurs

Learning outcomes	
Learning outcomes	Study programme
	competences

Know the different types of electric vehicles	AC1	BC9	CC2
	AC2	BC11	CC4
	AC5	BC12	CC5
	AC16	BC13	
		BC16	
		BC17	
		BC18	
Understand and know how to apply systems approaches to problems related to electric vehicles	AC2	BC12	CC2
	AC5	BC13	CC4
		BC17	CC5
		BC18	
Analyze and know how to design electric traction/propulsion systems	AC1	BC9	CC4
	AC13	BC12	CC5
	AC16		
Understand the needs of users in the selection of electric traction/propulsion systems	AC2	BC9	
	AC5	BC11	
	AC15	BC12	
	AC16	BC13	
		BC18	
Know the different processes, products and equipment related to the design of electric traction/propulsion systems	AC1	BC9	CC2
	AC2	BC11	CC4
	AC5	BC12	CC5
	AC16	BC13	
		BC17	
		BC18	

	Contents
Topic	Sub-topic
Introduction to electric mobility. Energy needs, efficiency,	Types of electrical machines used, according to needs, advantages and
advantages and disadvantages of electric drives.	disadvantages.
Wind energy, types of turbines used	-Turbine type 1
	-Turbine type 2
	-Turbine type 3
	-Turbine type 4

	Planning			
Methodologies / tests	Competencies	Ordinary class	Student?s personal	Total hours
		hours	work hours	
Online forum	A1 A2 A5 A13 A15	9	20	29
	A16 B9 B11 B12 B13			
	B16 B17 B18 C2 C4			
	C5			
ICT practicals	B9 B11 B12 B13 B18	6	2	8
Problem solving	A1 A5 A13 A15 A16	12	8	20
	B9 B11 B12 B13 B16			
	B18 C5			
Practical test:	A1 A2 A5 A13 A15	4	12	16
	A16 B9 B11 B12 B13			
	B16 B17 B18 C2			
Personalized attention		2	0	2

(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

	Methodologies
Methodologies	Description
Online forum	Virtual activity through TEAMS, where the fundamental concepts of the subject will be explained through an oral presentation,
	complemented with audiovisual and multimedia media to facilitate learning
ICT practicals	With the help of multimedia systems. we will analyze the most relevant modes of behavior of electrical machines.
Problem solving	With TEAMS, the most relevant problems are explained and solved in a systematic way, analyzing the difficulties that may
	arise, solving doubts in order to provide the student with the necessary resources for their subsequent resolution in an
	autonomous way.
Practical test:	It allows the evaluation of the work, skills and abilities acquired by the students, promoting their autonomous work

	Personalized attention
Methodologies	Description
Problem solving	They are very small groups and it is possible to track the work done. Analyze the fundamental points and defend the proposals
	adopted.

		Assessment	
Methodologies	Competencies	Description	
ICT practicals	B9 B11 B12 B13 B18	They will consist of justifying and analyzing the most relevant modes of behavior of	10
		electrical machines.	
Problem solving	A1 A5 A13 A15 A16	The student must solve and analyze with critical thinking, identifying the needs and	60
	B9 B11 B12 B13 B16	looking for the correct solutions, integrating the concepts acquired in the subject, the	
	B18 C5	different proposed problems.	
Practical test:	A1 A2 A5 A13 A15	It consists of the resolution of different proposals by the teacher or the student, where	30
	A16 B9 B11 B12 B13	they must demonstrate their skills, competencies and knowledge acquired.	
	B16 B17 B18 C2		

Assessment comments	

	Sources of information
Basic	- KRAUSE,P.C.; WASYNCZUK, O.; SUDHOFF, S.D. (March 5th 2002). Analysis of Electric Machinery and Drive
	Systems. Wiley-IEEE Press. Piscataway. N.J
	- KRISHNAN, R. (2001). Electric Motor Drives Modeling, Analysis, And Control. Prentice Hall.Pearson Education.
	Upper Saddle River. N.J.
	- Mohamed El-Sharkawi (2018). Fundamentals of Electric Drives. CL Engineering
	- El-Sharkawi, Mohamed (2017). Wind Energy: An Introduction. Editorial: CRC Press
Complementary	

Recommendations
Subjects that it is recommended to have taken before
Subjects that are recommended to be taken simultaneously
Subjects that continue the syllabus
Other comments



(*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.