		Teaching	Guide		
	Identifyir	g Data			2020/21
Subject (*)				730497232	
Study programme	Mestrado Universitario en Enxeñaría Industrial (plan 2018)				
		Descript	tors		
Cycle				Credits	
Official Master's Degre	ee 2nd four-month period	Secon	nd	Optional	3
Language	SpanishGalician				
Teaching method	Face-to-face				
Prerequisites					
Department	Enxeñaría Naval e Industrial				
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Web					
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General description	Introduction to analysis techiques	Introduction to analysis tecniques and materials characterization. Mechanical, thermal and metallurgical evaluation. If an eminently practical character and will be developed at EPS research laboratories related to analysis and processing the second seco			
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	Study programme competences / results
Code	Study programme competences / results
B1	CB6 - Possess and understand knowledge that provides a basis or opportunity to be original in the development and / or application of
	ideas, often in a research context.

B2	CB7 - That students know how to apply the knowledge acquired and their ability to solve problems in new or unfamiliar environments
	within broader (or multidisciplinary) contexts related to their area of ??study.
В3	CB8 - That students are able to integrate knowledge and face the complexity of making judgments based on information that, being
	incomplete or limited, includes reflections on the social and ethical responsibilities linked to the application of their knowledge and
	judgments.
B4	CB9 - That the students know how to communicate their conclusions -and the knowledge and ultimate reasons that sustain them- to
	specialized and non-specialized audiences in a clear and unambiguous way.
B5	CB10 - That students have the learning skills that allow them to continue studying in a way that will be largely self-directed or autonomous.
В6	G1 - Have adequate knowledge of the scientific and technological aspects in Industrial Engineering.
B13	G8 - Apply the knowledge acquired and solve problems in new or unfamiliar environments within broader and multidisciplinary contexts.
B14	G9 - Be able to integrate knowledge and face the complexity of making judgments based on information that, being incomplete or limited,
	includes reflections on social and ethical responsibilities linked to the application of their knowledge and judgments.
B15	G10 - Knowing how to communicate the conclusions -and the knowledge and ultimate reasons that sustain them- to specialized and
	non-specialized publics in a clear and unambiguous way.
B16	G11 - Possess the learning skills that allow to continue studying in a self-directed or autonomous way.
C1	ABET (a) - An ability to apply knowledge of mathematics, science, and engineering.
C2	ABET (b) - An ability to design and conduct experiments, as well as to analyze and interpret data.
C3	ABET (c) - An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic,
	environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
C6	ABET (f) - An understanding of professional and ethical responsibility.
C7	ABET (g) - An ability to communicate effectively.
C8	ABET (h) - The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and
	societal context.
C9	ABET (i) - A recognition of the need for, and an ability to engage in life-long learning.
C11	ABET (k) - An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Learning outcomes		
Learning outcomes	Study progr	amme
	competen	ces/
	results	S
Knowledge of main analysis techniques for materials characterization and their application.	BJ1	CJ1
	BJ4	CJ3
	BJ5	CJ7
	BJ6	CJ9
	BJ13	CJ11
	BJ15	
	BJ16	
Adquisition of systematic and rigorous work capacity in the laboratory	BJ2	CJ2
	BJ3	CJ3
	BJ13	CJ6
	BJ14	CJ9
Capacity to manage standards and existing facilities	BJ3	CJ3
	BJ4	CJ6
	BJ6	CJ7
	BJ14	CJ8
	BJ15	CJ11

Contents	
Topic	Sub-topic Sub-topic

The planned activities develop the contents established in the

Memoria de Verificación, approached in an eminently practical
way.

Sample preparation

Composition and structural analysis.

Thermal analysis

Mechanical properties.

	Planning	9		
Methodologies / tests	Competencies /	Teaching hours	Student?s personal	Total hours
	Results	(in-person & virtual)	work hours	
Guest lecture / keynote speech	B1 B2 B13 B6 C1 C2	2	4	6
	C11			
Laboratory practice	B1 B2 B3 B4 B15 B14	16	24	40
	B6 C1 C2 C3 C6 C7			
	C11			
Supervised projects	B3 B4 B5 B15 B14	3	21	24
	B16 C1 C3 C6 C7 C8			
	C9			
Personalized attention		5	0	5

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

	Methodologies
Methodologies	Description
Guest lecture /	Description of the equipment and procedures mostly used to characterize the composition and physical properties of materials
keynote speech	
Laboratory practice	Laboratory tasks in the facilities of the EPS research groups (CIM, LAIL and PROTERM). The activity may be related to ongoing research projects or result from an agreed proposal between the student and the teacher.
Supervised projects	Delivering of a report with the analysis of the results obtained in the laboratory work

	Personalized attention
Methodologies	Description
Supervised projects	The activity with the laboratory equipment and the work development will be carried out with the help and supervision of the
Laboratory practice	personnel of the research teams.

		Assessment	
Methodologies	Competencies /	Description	Qualification
	Results		
Supervised projects	B3 B4 B5 B15 B14	Qualification will take into account several aspects related to the structure a of the	40
	B16 C1 C3 C6 C7 C8	report, the description of the measurement method, the analysis of results and its	
	C9	conclusions.	
Laboratory practice	B1 B2 B3 B4 B15 B14	Attendance to all appointed working sessions will be taken into account.	60
	B6 C1 C2 C3 C6 C7		
	C11		

Assessment comments

Partial-time students will be evaluated in the same terms as those of full-time students.

Evaluation criteria in second opportunity will be the same as in first oportunity. There is not academic exemption for class attendance in this subject

Sources of information

Basic	- R.E. Whan, Ed. (1986). ASM Handbook Volume 10: Materials Characterization. ASM International
	- H. Kuhn and D. Medlin Ed. (2000). ASM Handbook Volume 8: Mechanical Testing and Evaluation. ASM International
	- D. Cramer and Bernard S. Covino, Jr. Ed. (2003). ASM Handbook Volume 13A: Corrosion: Fundamentals, Testing,
	and Protection. ASM International
	- J.D. Menczel, R.B. Prime, eds. (2009). Thermal analysis of polymers: fundamentals and applications. John Wiley,
	Hoboken, N.J
	- R. Artiaga Díaz (2005). Thermal analysis, fundamentals and applications to material characterization: proceedings of
	the international seminar?: thermal analysis and rheology, Ferrol, Spain, 30 Juny-4 July 2003 http://searc.
	Universidade da Coruña
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

1. The delivery of the documentary works for this subject: 1.1. Will be requested in virtual format and / or computer support. 1.2. Will be done through Moodle, in digital format avoiding the need of printing.1.3. If made on paper: -Do not use plastics. -Double sided printing will be made. -Recycled paper will be used. -The printing of drafts will be avoided.2. Sustainable use of resources and prevention of harm to the natural environment must be observed.

(*)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.