[MHL201] MATERIALS ENGINEERING

GENERAL INFORMATION

Studies	UNIVERSITY MASTER IN INDUSTRIAL ENGINEERING			**Subject**	?
Semester	1	**Course**	1	**Mention / Field of specialisation**	???
Character	OPTIONAL				
Plan	2022	**Modality**	Face-to-face	**Language**	CASTELLANO
Credits	3	**Hours/week**	1.67	**Total hours**	30 class hours + 45 non-class hours = **75 total hours**

PROFESSORS

TATO VEGA, GUILSON
AGINAGALDE LOPEZ, ANDREA
LLAVORI OSA, IÑIGO

REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
????	*(No previous knowledge required)*

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
MHMP03 - To design and carry out machine tests, determining the test plan for the chemical, physical, mechanical and microstructural characterization of materials and carrying them out in accordance with standard norms		x		1,08
MHMP04 - To design and carry out machine tests predicting the chemical, physical and mechanical behavior of a material in service		x		1,08
MHRA22 - To demonstrate knowledge and capabilities to carry out verification and control of facilities, processes and products		x		0,6
MHR125 - To 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		x		0,12
MHR129 - To possess the learning skills that allow them to continue studying in a way that will be largely self-directed or autonomous		x		0,12
			Total:	3

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

ENAEE LEARNING RESULTS	ECTS
ENA123 - Knowledge and comprehension: Deep knowledge and comprehension of mathematics and other basic sciences inherent in their engineering speciality, allowing them to achieve the other competencies of the degree.	0,36
ENA124 - Knowledge and comprehension: Deep knowledge and comprehension of the engineering disciplines of their speciality, at the level necessary to acquire the rest of the competencies of the degree.	0,3
ENA125 - Knowledge and comprehension: Critical Possession of avant-garde knowledge of their speciality.	0,3
ENA126 - Knowledge and comprehension: Critical knowledge of the broad multidisciplinary context of engineering and the interrelations existing between the knowledge of the different fields.	0,3
ENA130 - Analysis in engineering: Ability to identify, formulate and solve engineering problems in emerging areas of their speciality.	0,36
ENA133 - Research and innovation: Ability to identify, find and obtain the required data.	0,48
ENA134 - Research and innovation: Ability to carry out bibliographic searches and consult and use databases and other information sources with discretion, in order to carry out simulations with the aim of conducting research on complex topics of their speciality.	0,3
ENA136 - Research and innovation: High-level capacity and ability to project and carry out experimental investigations, interpret data with criteria, and draw conclusions.	0,3
ENA140 - Practical application of engineering: Complete knowledge of application of materials, equipment and tools, engineering technology and processes, and their limitations.	0,3
Total:	3

SECONDARY LEARNING RESULTS

RMH118 **[!]** ***Comprende el comportamiento de los materiales a fatiga***

LEARNING ACTIVITIES	CH	NCH	TH
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning		13 h.	13 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	2 h.	2 h.	4 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Individual written and/or oral tests or individual coding/programming tests	100%	Individual written and/or oral tests or individual coding/programming tests

CH - Class hours: 10 h.
NCH - Non-class hours: 15 h.
TH - Total hours: 25 h.

RMH119 **[!]** ***Distingue los fenómenos de degradación por corrosión y desgaste de materiales***

LEARNING ACTIVITIES	CH	NCH	TH
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning		28 h.	28 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	10 h.		10 h.
Carrying out exercises and solving problems individually and/or in teams	8 h.	2 h.	10 h.

EVALUATION SYSTEM	W	MAKE-UP MECHANISMS
Individual written and/or oral tests or individual coding/programming tests	100%	Individual written and/or oral tests or individual coding/programming tests

CH - Class hours: 20 h.
NCH - Non-class hours: 30 h.
TH - Total hours: 50 h.

CONTENTS

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources

Subject notes
Technical articles
Labs
Moodle Platform
Class presentations

Bibliography

William D. Callister, Jr. “Introducción a la ciencia e ingeniería de los materiales”. Tomo II. Ed. Reverté S.A.; Barcelona; 1996.

Jean P. Mercier, Gérald Zambelli, Wilfried Kurz. “Introduction à la science des matériaux”. Traité des Matériaux, Vol. 1. 3ème édition entièrement revue et augmentée. Presse Polytechniques et Universitaires Romandes. Lausanne.1999

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G. E. Dieter. “Mechanical Metallurgy”. SI Metric Edition. Mc Graw-Hill Book Company, London. 1988.

N. E. Dowling. “Mechanical Behaviour of Materials. Engineering Methods for Deformation, Fracture and Fatigue”. 2nd edition. Printice Hall. 1999.

S. Suresh. Fatigue of materials. 2nd edition. Cambridge University Press. 1998. ISBN 0-521-57847-7.

D. Landolt. “Corrosion et chimie de surfaces des matériaux”. Traité des Matériaux, Vol. 12. Reimpression corrigée. Presse Polytechniques et Universitaires Romandes. Lausanne, 1997.

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