

[MHF204] COMPOSITE MATERIALS MANUFACTURING PROCESSES

GENERAL INFORMATION

Studies	UNIVERSITY MASTER IN INDUSTRIAL ENGINEERING	Subject	?
Semester	2	Course	1
Character	OPTIONAL	Mention / Field of specialisation	???
Plan	2022	Modality	Face-to-face
Credits	3	Hours/week	1.83
		Language	CASTELLANO/EUSKARA
		Total hours	33 class hours + 42 non-class hours = 75 total hours

PROFESSORS

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REQUIRED PREVIOUS KNOWLEDGE

Subjects	Knowledge
(No specific previous subjects required)	[!] <i>Fundamentos de ciencia de materiales</i>
	[!] <i>Fundamentos de química</i>
	[!] <i>Resistencia de materiales</i>

LEARNING RESULTS

LEARNING RESULTS	KC	SK	AB	ECTS
MHMP01 - To project, calculate and design integrated manufacturing systems, optimizing the most suitable manufacturing processes for different industrial sectors, based on their material and design, identifying the machinery to be used, the parameters to control and establishing the designs of the tools to be used.		x		1,44
MHMP02 - To project, calculate and design integrated manufacturing systems taking into account the performance of polymeric, metallic, composite and biomaterial materials and be able to establish the relationship between properties-microstructure-processing		x		0,8
MHRA04 - To analyze and design chemical processes		x		0,24
MHRA27 - To demonstrate the ability to integrate knowledge and face the complexity of formulating judgments based on information that, being incomplete or limited, includes reflections on the social, health and safety, environmental, economic and industrial implications and responsibilities		x		0,08
MHRA28 - To communicate your conclusions and the knowledge and ultimate reasons that support them to specialized and non-specialized audiences in a clear and unambiguous way		x		0,08
MHRA30 - To work with people, involving and directing them in a dynamic aimed at 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 that it requires (quality, deadlines,...), assuming responsibility for the decisions made		x		0,04
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		0,16
MHR126 - To apply the knowledge acquired and your problem-solving skills in new, little-known or changing environments within broader (or multidisciplinary) contexts related to your area of study		x		0,08
MHR129 - To possess the learning skills that allow them to continue studying in a way that will be largely self-directed or autonomous		x		0,08
Total:				3

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

ENAE LEARNING RESULTS

ENAE 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.	0,3
ENA125 - Knowledge and comprehension: Critical Possession of avant-garde knowledge of their speciality.	0,36
ENA127 - Analysis in engineering: Ability to analyse new and complex engineering products, processes and systems within a broader multidisciplinary context; select and apply the most appropriate analysis, calculation and experimental methods already established, as well as innovative methods; and critically interpret the results of such analyses.	0,3
ENA128 - Analysis in engineering: Ability to conceive new products, processes, and systems.	0,3
ENA130 - Analysis in engineering: Ability to identify, formulate and solve engineering problems in emerging areas of their speciality.	0,3
ENA132 - Engineering projects: Ability to project while applying the knowledge and cutting-edge understanding of their engineering speciality.	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.	0,18
ENA136 - Research and innovation: High-level capacity and ability to project and carry out experimental investigations, interpret data with criteria, and draw conclusions.	0,18
ENA140 - Practical application of engineering: Complete knowledge of application of materials, equipment and tools,	0,3

engineering technology and processes, and their limitations.

ENA147 - Communication and Teamwork: Ability to operate effectively in domestic contexts as a member or leader of a team, which may be composed of people of different disciplines and levels, and who can use virtual communication tools. 0,3

Total: 3

SECONDARY LEARNING RESULTS

RMH139 [!] *Selecciona la tecnología de fabricación e instalaciones más adecuadas para el procesado de materiales compuestos*

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		4 h.	4 h.
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning		4 h.	4 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	1 h.	2 h.	3 h.
Carrying out/resolving projects/challenges/cases, etc. to provide solutions to problems in interdisciplinary contexts, real and/or simulated, individually and/or in teams	1 h.	5 h.	6 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	8 h.	3 h.	11 h.
Practical work in workshops and/or laboratories, individually and/or in teams	4 h.		4 h.
Seminars, debates and/or workshops to deepen and/or share experiences.	1 h.	1 h.	2 h.
Tutoring sessions and monitoring of training activities	2 h.		2 h.
Reading and personal and/or shared analysis of relevant and current publications (books, articles, catalogues, etc.) related to the speciality	1 h.	4 h.	5 h.

EVALUATION SYSTEM

W

Individual written and/or oral tests or individual coding/programming tests 100%

MAKE-UP MECHANISMS

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

Comments: All activities (control points, individual and group assignments, etc...) must have a minimum mark (5 minimum) and there will be an opportunity to retake every activity. In case of retake of the control point, the final mark will be the mark of the retake.

CH - Class hours: 18 h.

NCH - Non-class hours: 23 h.

TH - Total hours: 41 h.

RMH140 [!] *Determina los parámetros de procesado de materiales compuestos y los optimiza mediante herramientas de simulación*

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	1 h.	3 h.	4 h.
Personal study and flexible development of concepts and subjects using active dynamics, to foster more meaningful learning	1 h.	2 h.	3 h.
Conducting tests, giving presentations, presenting defences, taking examinations and/or doing checkpoints	1 h.	2 h.	3 h.
Computer simulation exercises, individually and/or in teams	1 h.	4 h.	5 h.
Presentation by the teacher in the classroom, in participatory classes, of concepts and procedures associated with the subjects	9 h.		9 h.
Carrying out exercises and solving problems individually and/or in teams	1 h.	5 h.	6 h.
Practical work in workshops and/or laboratories, individually and/or in teams	1 h.	3 h.	4 h.

EVALUATION SYSTEM

W

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory 40%

MAKE-UP MECHANISMS

Reports on the completion of exercises, case studies, computer exercises, simulation exercises, laboratory exercises, term

<p>exercises, term projects, challenges and problems Individual written and/or oral tests or individual coding/programming tests Comments: All activities (control points, individual and group assignments, etc...) must have a minimum mark (5 minimum) and there will be an opportunity to retake every activity. In case of retake of the control point, the final mark will be the mark of the retake.</p> <p>CH - Class hours: 15 h. NCH - Non-class hours: 19 h. TH - Total hours: 34 h.</p>	60%	<p>projects, challenges and problems Individual written and/or oral tests or individual coding/programming tests</p>
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CONTENTS

LEARNING RESOURCES AND BIBLIOGRAPHY

Learning resources	Bibliography
Slides of the subject Technical articles Video projections Lab practical training Specific Master Software Class presentations	Manufacturing Techniques for Polymer Matrix Composites (PMCs), Suresh G. Advani and Kuang-Ting Hsiao, 2012 Woodhead Publishing, ISBN 978-0-85709-067-6 Fiber Technology for Fiber-Reinforced Composites, M. ÖzgürSeydibeyo lu, Amar K. Mohanty and Manjusri Misra, 2017,Elsevier, ISBN 978-0-08-101871-2