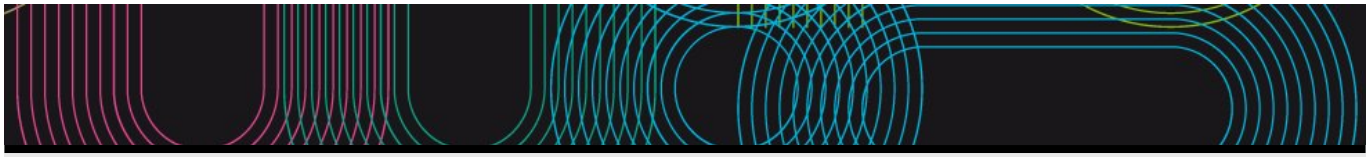

IDENTIFYING DATA				
Manufacturing technologies and systems				
Subject	Manufacturing technologies and systems			
Code	V12G340V01701			
Study programme	Grado en Ingeniería en Organización Industrial			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	3rd	1st
Teaching language	#EnglishFriendly Spanish Galician			
Department				
Coordinator	Pérez García, José Antonio			
Lecturers	Peláez Lourido, Gustavo Carlos Pérez García, José Antonio			
E-mail	japerez@uvigo.es			
Web	http://https://moovi.uvigo.gal/login/index.php			
General description	This matter is "*English *Friendly"			

Skills	
Code	
B3	CG 3. Knowledge in basic and technological subjects that will enable them to learn new methods and theories, and equip them with versatility to adapt to new situations.
C15	CE15 Basic knowledge of production systems and manufacturing.
C30	CE30 Applied knowledge of systems and processes of manufacturing, metrology and quality control.
D2	CT2 Problems resolution.
D8	CT8 Decision making.
D9	CT9 Apply knowledge.
D10	CT10 Self learning and work.

Learning outcomes			
Expected results from this subject	Training and Learning Results		
(*)	B3	C15 C30	D2 D8 D9 D10

Contents	
Topic	
Unit 1.- Integration between Product Design and Manufacture	Chapter 01.- Concurrent Engineering and DFMA Chapter 02.- Product Specifications for Manufacturing
Unit 2.- Manufacturing Technologies	Chapter 03.- Molding of metals and plastics Chapter 04.- Metal forming Chapter 05.- Machining Chapter 06.- Composites manufacturing processes Chapter 07.- Additive Manufacturing

Unit 3.- Manufacturing Systems	Chapter 08.- Productivity indicators (KPI) and manufacturing costs Chapter 09.- Automation Technologies Chapter 10.- Material Transport and Storage Systems Chapter 11.- Manufacturing Systems Chapter 12.- Quality Control Systems Chapter 13.- Lean Manufacturing Chapter 14.- Prevention of Occupational Risks in Manufacturing Centers
Unit 4.- Industrialization of Products	Chapter 15.- Industrialization of Products

Planning

	Class hours	Hours outside the classroom	Total hours
Lecturing	13	26	39
Problem solving	19.5	39	58.5
Laboratory practical	6	12	18
Project based learning	12	24	36
Objective questions exam	2	0	2
Project	1	0	1

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

Methodologies

	Description
Lecturing	The theoretical classes will be carried out combining the blackboard explanations with the use of transparencies, videos and computer presentations.
Problem solving	Problem solving The purpose of these classes is to complement the content of the notes, interpreting the concepts in these exposed through the sample of examples and performing exercises
Laboratory practical	The practical laboratory classes will be held in groups of 20 students maximum, and using the resources available both in the laboratories of the IPF Area and in the Computer Rooms at the EEI-Campus
Project based learning	The student will develop a product design and manufacturing project in which the knowledge acquired in the subject will be put into practice

Personalized assistance

Methodologies	Description
Lecturing	Both in class and in the tutorial hours, that the teacher will communicate to the students at the beginning of the course (both in person and online through Remote Campus)
Laboratory practical	Both in class and in the tutorial hours, that the teacher will communicate to the students at the beginning of the course (both in person and online through Remote Campus)
Project based learning	Both in class and in the tutorial hours, that the teacher will communicate to the students at the beginning of the course (both in person and online through Remote Campus)
Problem solving	Both in class and in the tutorial hours, that the teacher will communicate to the students at the beginning of the course (both in person and online through Remote Campus)

Assessment

	Description	Qualification	Training and Learning Results		
Lecturing	Continuous evaluation: Exam Type Test subject monitoring	10			
Problem solving	Continuous evaluation: Exam Type Test subject monitoring	10			
Project based learning	Continuous evaluation: Project - Component Design and Manufacture: Evolution report	10			
Objective questions exam	Final Exam	50	B3	C15	D2 D8 D9 D10
Project	Project: Component Design and Manufacture: Final Repot	20	B3	C15 C30	D2 D8 D9 D10

Other comments on the Evaluation

FIRST OPPORTUNITY The subject is evaluated based on two parameters:

- Continuous Assessment (30% of the final grade for the course). Of this percentage, 20% corresponds to CONTINUOUS EVALUATION of follow-up of THEORY CLASSES AND PROBLEM SOLVING and 10% to CONTINUOUS EVALUATION OF PRACTICAL LECTURES
- Final Assessment (70% of the final grade for the course) .- Of this percentage, 50% corresponds to the grade obtained in the FINAL EXAM OF THE SUBJECT and 20% corresponds to the grade obtained in the SUBJECT PROJECT: REPORT FINAL

  Other considerations:

  - Those students who achieve, between all the two sections, a grade equal to or greater than 5 points, not having obtained less than 4 points (on a scale from 0 to 10) in the Final Exam and Final Project Report of the subject will pass the course.
  - The project of the subject may require the use of software and equipment available in the facilities of the Campus of the EEI
  - For those students to whom the management of the EEI has granted the resignation to the Continuous Assessment, the Final Exam acquires a value of 70% and the Final Report of the project of the subject 30%

SECOND OPPORTUNITY The evaluation method is the same as that described for the FIRST OPPORTUNITY
FINAL CONSIDERATIONS:

- In case of discrepancy between the content of the Teaching Guide in its Spanish, Galllego and English versions, the provisions of the Spanish version will prevail.
- Ethical commitment: The student is expected to present appropriate ethical behavior. In the case of detecting unethical behavior (copying, plagiarism, use of unauthorized electronic devices, and others), the student will be considered as not meeting the necessary requirements to pass the subject. In this case, the overall grade in this academic year will be suspended (0.0).

Sources of information

Basic Bibliography

AENOR, **AENORmas (Norweb)**, AENOR, 2021

Campbell, John, **Complete Casting Handbook**, 978-0-444-63509-9, 2, Elsevier, 2015

Groover, Mikell P., **Automation, Production Systems, and Computer Integrated Manufacturing**, 978-1-292-07611-9, 4ª, Pearson, 2016

Rovira, Norbert, **Fusion 360 con ejemplos y ejercicios prácticos**, 978-84-267-2711-4, 1ª, Marcombo, 2020

Complementary Bibliography

Rubio Alvir, Eva, **Ejercicios y problemas de mecanizado**, 978-84-8322-765-7, 1ª, Pearson Educación, 2011

Mikell P. Groover, **Principles of Modern Manufacturing**, 5ª, Wiley, 2013

J.T. Black, Ronald A. Kohser, **Degarmo's materials and processes in manufacturing**, 12th ed, Wiley, 2017

Serope Kalpakjian, Steven R. Schmid, **Manufacturing engineering and technology**, 7ª, Pearson Education,, 2014

Recommendations

Subjects that are recommended to be taken simultaneously

Control and industrial automation/V12G340V01702
Quality, safety and sustainability management/V12G340V01602
Materials engineering/V12G340V01803
Operations management/V12G340V01601

Subjects that it is recommended to have taken before

Materials science and technology/V12G340V01301
Fundamentals of manufacturing systems and technologies/V12G340V01305

Contingency plan

Description

=== EXCEPTIONAL PLANNING ===
Given the uncertain and unpredictable evolution of the health alert caused by COVID-19, the University of Vigo establishes an extraordinary planning that will be activated when the administrations and the institution itself determine it, considering safety, health and responsibility criteria both in distance and blended learning. These already planned measures guarantee, at the required time, the development of teaching in a more agile and effective way, as it is known in advance (or well in advance) by the students and teachers through the standardized tool.

=== ADAPTATION OF THE METHODOLOGIES ===
* Teaching methodologies maintained
None
* Teaching methodologies modified
All classes (theoretical and practical) will be taught online through the Remote Campus
* Non-attendance mechanisms for student attention (tutoring)
They will be done through Remote Campus
* Modifications (if applicable) of the contents
None

* Additional bibliography to facilitate self-learning
None

* Other modifications
None

=== ADAPTATION OF THE TESTS ===
* Tests already carried out
Not applicable

* Pending tests that are maintained
Not applicable

* Tests that are modified
None

* New tests
Pending tests will be done online through remote Campus

* Additional Information
None