



## IDENTIFYING DATA

### Advanced Integrated Manufacturing Systems

Subject	Advanced Integrated Manufacturing Systems			
Code	V04M141V01202			
Study programme	(*)Máster Universitario en Enxeñaría Industrial			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	3	Optional	1st	2nd
Teaching language	#EnglishFriendly Spanish Galician			
Department				
Coordinator	Pérez García, José Antonio			
Lecturers	Pérez García, José Antonio			
E-mail	japerez@uvigo.es			
Web	<a href="http://campusremotouvigo.gal/">http://campusremotouvigo.gal/</a>			
General description	(*)Actualmente e nun futuro próximo tanto o conxunto dos sistemas necesarios de fabricación nunha empresa, como os procesos que estes inclúen, deben de aplicar as tecnoloxías de xestión e comunicación integradas. O contido desta materia pretende introducir ao alumno tanto os fundamentos da integración dos sistemas de fabricación como os coñecementos necesarios para a caracterización das Tecnoloxías e os Procesos de fabricación, de produtos con finalidade funcional mecánica, necesarios para poder efectuar o *balanceamento das tecnoloxías e filosofías máis adecuadas para a integración dos Sistemas Avanzados de Fabricación			

## Training and Learning Results

Code	
A1	Knowledge and understanding that provide a basis or opportunity for originality in developing and / or applying ideas, often in a research context.
A3	That students are able to integrate knowledge and handle complexity and formulate judgments based on information that was incomplete or limited, include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgments.
A5	Students must possess the learning skills that enable them to continue studying in a way that will be largely self-directed or autonomous.
C1	CET1. Project, calculate and design products, processes, facilities and plants.
C3	CET3. Conduct research, development and innovation in products, processes and methods.
C8	CET8. Being able to integrate knowledge and handle complexity and formulate judgments based on information that was incomplete or limited, include reflecting on social and ethical responsibilities linked to the application of their knowledge and judgments.
C13	CTI2. Knowledge and ability to design, calculate and design integrated manufacturing systems.
D9	ABET-i. A recognition of the need for, and an ability to engage in life-long learning.

## Expected results from this subject

Expected results from this subject	Training and Learning Results
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A1  
A3  
A5  
C1  
C3  
C8  
C13  
D9**Contents**

Topic

Module 01.- Introduction to Advanced Manufacturing

Module 02.- Manufacturing Systems

Module 03.- Integrated Manufacturing

Module 04.- Flexible Manufacturing

Module 05.- Computer Aided Manufacturing

Module 06.- Manufacturing Automation (\*)

**Planning**

	Class hours	Hours outside the classroom	Total hours
Lecturing	5	5	10
Simulation	4	4	8
Project based learning	16	24	40
Project	2	10	12
Presentation	1	4	5

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

**Methodologies**

	Description
Lecturing	5 sessions, one hour long, focused on the basic presentation of content
Simulation	5 sessions, one hour long, focused on the basic presentation of content
Project based learning	6 sessions, lasting two hours each, to be held in the IPF Area Workshops at the EEI Campus building focused on the development of design projects for Advanced Integrated Manufacturing Systems

**Personalized assistance**

Methodologies	Description
Lecturing	A tutorial schedule will be established, both face-to-face and online through Remote Campus
Project based learning	A tutorial schedule will be established, both face-to-face and online through Remote Campus
Simulation	A tutorial schedule will be established, both face-to-face and online through Remote Campus
Tests	Description
Project	A tutorial schedule will be established, both face-to-face and online through Remote Campus

**Assessment**

	Description	Qualification	Training and Learning Results		
Project	The student will carry out a practical project on the integration of advanced manufacturing technologies. In its preparation, you will use the CAD/CAM/CAE Autodesk Inventor Professional software and the manufacturing equipment available in the manufacturing workshop of the IPF Area at the EEI Campus building	70	A1 A3 A5	C1 C3 C8 C13	D9
Presentation	The student will document and present the project developed during the course	30	A1 A5	C1 C3 C13	D9

**Other comments on the Evaluation**

**FIRST CHANCE (January):** a) Continuous Assessment Modality The continuous evaluation will be carried out during the teaching period of the subject. In this modality, all tests are compulsory. The contribution of each test to the total grade is as follows:

1. First Project Report. At the beginning of the project, the student will present a first report in which he will detail both

the objectives of the work and the resources and the execution planning, having to demonstrate both the suitability of the chosen topic and the feasibility of its manufacture with the resources available in the workshop. Mechanic of the IPF Area at the EEI Campus Headquarters (10% of the qualification).

2. Second Project Report. Halfway through the project, the student will present a second report that reflects the status of the project's evolution, analyzes the degree of compliance with the initially planned plan and, if necessary, proposes possible corrective measures necessary to achieve final compliance with the planned objectives ( 20% of the grade)
3. Final Project Report. This report, which will constitute the memory of the work, will constitute the final documentation of the work, that is, calculations, plans, process sheets, costs, etc. (40% of the grade).
4. Presentation of the Work. After the delivery of the Final Work Report, the student will make a public presentation of it (30% of the grade).

To pass the subject in the first edition of the certificate by continuous evaluation, a minimum of 40% must be reached in each of the previously written tests. In the event that the student does not reach this minimum in any of the Continuous Assessment tests or, having reached it, does not achieve a minimum of 5 (scale 0 to 10) in the overall subject, it will be considered that they have not passed the exam. subject and must be submitted to the Second Chance (June/July). In the case of not reaching the minimum in any continuous assessment test, and the sum of the qualifications is greater than 5 (scale 0 to 10), the record will include 4.9. **b) Overall Assessment Modality.** Those students who renounce the continuous evaluation methodology and therefore use the global evaluation methodology, will be evaluated solely on the basis of:

1. Final Project Report. This report, which will constitute the memory of the work, will constitute the final documentation of the work, that is, calculations, plans, process sheets, costs, etc. (70% of the grade).
2. Presentation of the Work. After the delivery of the Final Project Report, the student will make a public presentation of it (30% of the grade).

Maintaining the minimum grade requirements set forth in the previous case **SECOND CHANCE (June/July):** In the Second Opportunity all students will be evaluated following the guidelines established in the modality "b) Global evaluation" of the First Opportunity Ethical Commitment: The student is expected to present adequate ethical behavior, as stated in Articles 39, 40, 41 and 42 of the Regulation on the evaluation, qualification and quality of teaching and the learning process of the student body, approved in the Senate on April 18, 2023. In the case of detecting unethical behavior (copying, plagiarism, use of unauthorized electrical devices, and others) it will be considered that the student does not meet the necessary requirements to pass the subject. In this case, the overall grade for this academic year will be fail (0.0). NOTICE: In the event of discrepancies between the different language versions of the guide, what is included in the Spanish version will prevail.

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#### Sources of information

##### Basic Bibliography

Groover, M.P., **Automation, production systems, and computer-integrated manufacturing**, 978-0-13-239321-8, 4ª, PEARSON, 2007

##### Complementary Bibliography

Tickoo, Sham, **Autodesk Inventor Professional 2020 for Engineers and Designers**, 978-93-89423-10-5, 1ª, BPB PUBLICATIONS, 2019

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#### Recommendations