



## IDENTIFYING DATA

### Manufacturing engineering

Subject	Manufacturing engineering			
Code	V12G360V01604			
Study programme	Grado en Ingeniería en Tecnologías Industriales			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	3rd	2nd
Teaching language	Spanish			
Department				
Coordinator	Pereira Domínguez, Alejandro			
Lecturers	Pereira Domínguez, Alejandro Pérez García, José Antonio			
E-mail	apereira@uvigo.es			
Web				
General description				

## Skills

Code	
B3	CG3 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.
C20	CE20 Applied knowledge of systems and manufacturing processes, metrology and quality control.
D2	CT2 Problems resolution.
D8	CT8 Decision making.
D9	CT9 Apply knowledge.
D10	CT10 Self learning and work.
D17	CT17 Working as a team.
D20	CT20 Ability to communicate with people not expert in the field.

## Learning outcomes

Expected results from this subject (*)	Training and Learning Results		
	B3	C20	D2 D8 D9 D10 D17 D20

## Contents

Topic	
Thematic block I: Integration of Design of product and manufacture.	Chapter 0. Design of product and of process chapter 1. Systems of manufacture. Chapter 2. Technologies of additive manufacturing Chapter 3. Design of product for manufacturing (DFMA)
Thematic block II: Design and planning of processes of manufacture.	Chapter 4. Methodology of Design and Planning of processes of manufacture. Chapter 5. Choosing of operations, tools, toolings and conditions of process. chapter 6. Datums, fixturing and toolings. Chapter 7. Technicians of improvement of design and processes.

Thematic block III: Resources of the Systems of Manufacture. Chapter 8. Machines tools with Numerical Control and components  
 Chapter 9. Industrial robots and logistics devices. Systems of positioning, maintenance  
 Chapter 10. Systems of measurement and verification in lines of manufacture. Definition of control charts

### Planning

	Class hours	Hours outside the classroom	Total hours
Introductory activities	2	0	2
Problem solving	18	16	34
Laboratory practical	18	0	18
Mentored work	0	60	60
Lecturing	14	14	28
Objective questions exam	2	0	2
Essay	2	0	2
Essay questions exam	2	2	4

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

### Methodologies

	Description
Introductory activities	Introduction Objective theoretical topics practical topics Assessment Develop of projects. Design and Develop Bibliographic Resources
Problem solving	Development of real practical cases and exercises on the following contents 1. Distribution in plant 2. Design of product / tooling 3. Application *DFMA 4. Application dimensional tolerances, geometrical and of superficial finishing 5. Design of operations of manufacture. 6. Conditions of process manufacturing. 7. Calculus of speeds, feeds, strengths and powers in manufacture 8. Procedures of measurement.
Laboratory practical	*P1-2 PLM. Design of product and of process. Platform CAD/CAM available (Catia, NX, Fusion ) 2h +2h  P3 Planning process of manufacturing. Design of Tooling for product 2h  P4 -5 -6 Programming assisted of machined tooling, CAM, (Catia, NX, Fusion, ) 6h P7 -8 -9 Supervising works 6*h
Mentored work	Project (Work to make by student. It would correspond to Groups C of 5 students) Total 18*h
Lecturing	Synthetic teaching of the topics  Proposition real cases and problems

### Personalized assistance

Methodologies	Description
Mentored work	Attending Works and supervising projects (groups from among 3 and 5 people).

### Assessment

	Description	Qualification	Training and Learning Results
Objective questions exam	Examination with questions type test, in which the no hit answers discount. The test can comport questions of type problems and development.	50	B3 C20 D2 D8 D9

Essay	Development of project of course. It will evaluate , the capacity of work in team, creativity, autonomous work and in case of public presentation the capacity of communication and *sintesis.	50	C20	D2 D9 D10 D17 D20
Essay questions exam	Development of problems and or cases	50	C20	D2 D8 D9 D10

### Other comments on the Evaluation

The evaluation consists of:

A.-) Examination of theoretical questions : It´s mandatory that students have a mark > 4 (0 to 10) to be able to make average with part B ( Project or Examination of questions of development) Value 50%

Practical Part, The student has to choose between \*B1 or \*B2

B1.-)Project. Value 50%

B2.-)Examination of development questions : Consistent in problems and cases. Value 50%

The final mark is the average mark A +B, being B= B1 or B2

ethical Commitment: it expects that the present student a suitable ethical behaviour. In the case to detect a no ethical behaviour (copy, plagiarism, utilisation of unauthorised electronic devices, and others) will consider that the student does not gather the necessary requirements to surpass the matter. In this case the global qualification in the present academic course will be of suspense (0.0).

### Sources of information

#### Basic Bibliography

#### Complementary Bibliography

Pereira A., Prado T., **Notes of the subject IF**, 2015,

Pereira A., **Exercises and cases of manufacturing Engineering**, 2016,

Kalpakjian, S., **Manufacturing Engineering and Technology**, 7th ed.,

### Recommendations

### Subjects that it is recommended to have taken before

Fundamentals of manufacturing systems and technologies/V12G360V01402

### Other comments

Requirements:

To enrol in this matter is necessary to have surpassed or be enrolled of all the matters of the inferior courses to the course in which it is situated this matter.

### Contingency plan

#### Description

=== EXCEPTIONAL MEASURES PLANNED ===

Given the uncertain and unpredictable evolution of the health alert caused by COVID-19, the University of Vigo establishes extraordinary planning that will be activated at the time that the administrations and the institution itself determine it based on safety, health and responsibility criteria. , and guaranteeing teaching in a non-classroom or partially classroom setting. These already planned measures guarantee, at the required time, the development of teaching in a more agile and effective way by being known in advance (or well in advance) by students and teachers through the standardized tool and institutionalized teaching guides.

=== ADAPTATION OF THE METHODOLOGIES ===

\* Teaching methodologies that are maintained

All. With the exception of the realization that will be carried out remotely

\* Non-face-to-face service mechanism for students (tutorials)

Through virtual dispatch on remote campus

\* Additional bibliography to facilitate self-learning

Documents or links to necessary educational resources will be published in faitic

=== ADAPTATION OF THE EVALUATION ===

\* Tests already carried out

They are all kept with the same weight and value

\* Pending tests that are maintained

They will be carried out electronically through faitic keeping the same weight and value

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