



IDENTIFYING DATA

Advanced Manufacturing Engineering

Subject	Advanced Manufacturing Engineering			
Code	V04M141V01321			
Study programme	(*)Máster Universitario en Enxeñaría Industrial			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	2nd	1st
Teaching language	Spanish			
Department				
Coordinator	Pereira Domínguez, Alejandro			
Lecturers	Pereira Domínguez, Alejandro			
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Web	http://http://cursos.faitic.uvigo.es/tema1516/claroline/course/index.php			
General description	Subject of specialisation for pertinent students of the degree of Industrial Technologies. In this subject based in *PBL (*project *based *learning) treats to develop a team, tooling or system from the idea to the manufacture and achieve the aims of learning based in realisation of practical project with the utilisation of the available means in laboratory.			

Competencies

Code	
A1	Knowledge and understanding that provide a basis or opportunity for originality in developing and / or applying ideas, often in a research context.
A2	That the students can apply their knowledge and their ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study.
A4	Students can communicate their conclusions, and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously.
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.
C5	CET5. Technically and economically manage projects, installations, plants, companies and technology centers.
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.
C9	CET9. Knowing how to communicate the conclusions -and the knowledge and rationale underpinning these, to specialist and non-specialist audiences clearly and unambiguously.
C10	CET10. Possess learning skills that will allow further study of a self-directed or autonomous mode.
C13	CTI2. Knowledge and ability to design, calculate and design integrated manufacturing systems.
D5	ABET-e. An ability to identify, formulate, and solve engineering problems.
D11	ABET-k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Learning outcomes

Expected results from this subject	Training and Learning Results
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- Know the technological base on which support the most recent investigations in the use of machine-tool and teams for manufacture by conformed and teams of inspection. A1 A2
- Know the main materials and processes employed in components of machines. A4
- It knows the requests of the distinct components for the realisation of a suitable selection of materials. A5
- Know the experimental process used when it works with scheme of high speed (*HSM) for manufacture by mechanised C1 C3
- Know the current technology for improvement of the superficial properties: resistance to the wear and to the corrosion. Purchase criteria for the selection of the treatment of surfaces more adapted to lengthen the life in service of a component. C5 C8 C9
- Deepen in the technicians of verification of machine-tool. C10 C13 D5 D11

Contents

Topic	
Mechanised of High Speed.	<input type="checkbox"/> Considerations and parametrisation of the Half process and tools used <input type="checkbox"/> Simulation of process. Application
Processes of *moldeo of polymeric materials and *composites.	<input type="checkbox"/> Parametrisation of processes of conformed. Analysis <input type="checkbox"/> Process injection <input type="checkbox"/> Conformed *composites <input type="checkbox"/> Project of manufacture of mould
Technicians Advanced of Measurement and Control of Quality. Technical *CAQ	<input type="checkbox"/> Systems of measurement with contact <input type="checkbox"/> Systems of measurement without contact <input type="checkbox"/> *Aseguramiento of dimensional tolerances, geometrical, of form and superficial <input type="checkbox"/> Finished position and *Texturizado
Programming and control of cells of manufacture.	<input type="checkbox"/> *Programacion CAM of CM <input type="checkbox"/> *Programacion CAM of lathe <input type="checkbox"/> *Programacion CAM of Robot <input type="checkbox"/> Simulation and *Programacion Cell
Technologies for the *micro and the *nanofabricación.	<input type="checkbox"/> Means and toolings of *Microfabricación <input type="checkbox"/> Technologies of *nanofabricación

Planning

	Class hours	Hours outside the classroom	Total hours
Workshops	26	0	26
Workshops	0	56	56
Problem solving	16	0	16
Presentation	2	40	42
Lecturing	10	0	10

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

Methodologies

	Description
Workshops	Preparation of project of manufacture, memory and practical design
Workshops	*Guia Of tools used in function of the existent resources
Problem solving	Application of problems of calculation of manufacture
Presentation	Presentation memory of Work made and exhibition of results
Lecturing	Exhibition of theory and application to practical cases

Personalized assistance

Methodologies	Description
Workshops	The project of course distributes in groups, of 3 to 5 people.

Assessment

Description	Qualification	Training and Learning Results

Workshops	Development of design of product and process. The students takes into account Difficulty design (TRL) Degree of innovation Planificacion process CAM program Difficulty Level of manufacture Execution Memory document	70	A4	C1 C3 C13
Presentation	The student must to present the project based learning process for 15 minutes	30	A4	C1 C3 C13

Other comments on the Evaluation

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) considers that the student does not gather the necessary requirements to surpass the matter. In this case the global qualification in the current academic course will be of suspense (0.0).

Sources of information

Basic Bibliography

Complementary Bibliography

Pereira A., **Notes Manufacturing real cases FAV.**, 2020,

Recommendations

Contingency plan

Description

The contents and the results of learning will not owe to be modified for power guarantee the collected in the memories of the qualifications. It owes to treated to adjust the materials, tutorships and the teaching methodologies to treat to achieve these results. It treats of an aspect of big importance stop the overrun of the processes of the one who are subjected the different qualifications. And say, the plan of contingency owes to based in a development of the subject, adapting the methodologies and the materials, in the research of the fulfilment of the resulted of learning of all the students.

The teaching methodologies will impart , to be necessary, to the telematic means that put the disposal of the teaching staff, in addition to the documentation facilitated through FAITIC and other platforms, email, etc.

When it was not possible to presential sesions, in the measure of the possible, will prevail the contained theorists by telematic means as well as those contents of practices of resolution of problems, classroom of computing, and others, that can be virtuals or developed pole students of way guided, tried keep the presential stop the experimental practices of laboratory, always that the groups fulfil with the rule established in the moment by the authorities in sanitary subject and of security. In the case of no power be imparted of form presential, those contents no virtuals will impart or by others (autonomous work guided, etc.) Enabling achieve equally the competitions associated it they. The titorships will be able to developed indistinctly of form presential (always that it was possible to guarantee the sanitary measures) or telematic (and email and others) respecting or adapting the schedules of titorships due. it will do a adecuacion methodological to the students of risk, facilitating him additional specific information, to accredit that can not have access to the contained imparted of conventional form.

Additional information envelope to evaluation: they will keep those proofs that already come realizing of telematic form and, in the measure of the possible, will keep the proofs presentials to the normative valid medic. The proofs will develop of form presential except Resolution Reitoral that indicate that they owe do of form non-presential, realizing gave way through the distinct tools put the disposal of the teaching staff. Those proofs no-don of telematic form by others (deliveries of autonomous work guided, etc.)