

1. BASIC INFORMATION

Course	PROYECTO INTEGRADOR: PROCESOS DE FABRICACIÓN II Manufacturing Process II
Degree program	GISI. Optativa de las menciones de Mecánica, Tecnologías Industriales, Energía y Automoción
School	Arquitectura, Ingeniería y Diseño
Year	Fourth
ECTS	6
Credit type	Optional
Language(s)	English
Delivery mode	Face to face
Semester	First
Academic year	2019-20
Coordinating professor	Carlos Alberto Talayero Giménez de Azcarate

2. PRESENTATION

This course is the second subject of the manufacturing process module, and therefore, the concepts of manufacturing are expanded, as well as all the processes involved from the conception of the idea of the product to its completion. The module develops key skills for manufacturing engineers. In this course, the student will develop these skills of solving problem, management and capacity planning and teamwork. The objective of this course is to understand the optimization of manufacturing processes, apply advanced machining processes and automated manufacturing. Interest in the development of the future profession is of great value to the industrial engineer. Engineers, in their professional career, have to carry out projects from the design of the product to the final production..

3. COMPETENCIES AND LEARNING OUTCOMES

Cross-curricular competencies:

CT3. Teamwork. Ability to integrate and collaborate actively with others, areas and/or organizations for the achievement of common objectives.

CT4. Written / oral communication. Ability to transmit and receive data, ideas, opinions and attitudes to achieve understanding and improvement, being oral which is performed by words and gestures, and written, through writing or graphic props.

Specific competencies:

CE31: applied knowledge of manufacturing, metrology and quality control processes and systems. (literal transcription of the competencies described in the order CIN/351/2009, 9 February)

Competencias específicas:

CE31: Conocimiento aplicado de sistemas y procesos de fabricación, metrología y control de calidad. (transcripción literal de las competencias descritas en la Orden CIN/351/2009, de 9 de febrero)

Learning outcomes: RA1 rating and select manufacturing processes appropriate depending on the type and number of parts. RA2. Analyze the costs associated with each manufacturing process. RA3. Assess the possibilities of improvement of a manufacturing process. The table below shows the relationship between the competencies developed in the course and the results of learning being pursued:

Learning outcome:

- LO1 To evaluate and select manufacturing processes appropriate depending on the type and amount of pieces
- LO2. To analyze the associated costs for each manufacturing process.
- LO3. To evaluate the possible improvement of the manufacturing processes.

The following table shows the relationship between the competencies developed during the course and the learning outcomes pursued::

Competencies	Learning Outcome
CT3, CE31	LO1. Evaluate and select appropriate manufacturing processes according to the type and quantity of pieces.
CT4, CE31	LO2. Analyze the costs associated with each manufacturing process
CT3, CT4, CE31	LO3. Evaluate the possibilities of improvement of a manufacturing process

4. CONTENT

The subject is organized into five learning units:

- 1 Optimization of manufacturing processes
2. Machining. Advanced Processes
3. High energy conformation
4. Automated manufacturing
5. Manufacture by numerical control

5. TEACHING-LEARNING METHODOLOGIES

The types of teaching-learning methodologies used are indicated below:

- Master class
- Cooperative learning
- Problems based learning
- Project Based Learning
- Oriented academic activities
- Simulation environments

6. LEARNING ACTIVITIES

Listed below are the types of learning activities and the number of hours the student will spend on each one:

Campus-based mode:

Learning Activities	Hours
AF1: Resolution of exercises, problems, tests and practical work	18
AF2: Professor's exposure and presentations	18
AF4: Visits to companies and plants	7
AF5: Laboratory and workshop practices	14
AF7: Individual or group tutorials	5
AF9: Preparation of real or simulated projects (through project-based learning methodology)	45
AF10: Search for information and / or preparation of written assignment and reports	13
AF11: Autonomous study	30
TOTAL	150 h

7. ASSESSMENT

Listed below are the assessment systems used and the weight each one carries towards the final course grade:

Assessment criteria	Weight (%)
Tests to evaluate theoretical / practical cognitive objectives (objective tests, written tests, oral presentations, cases / problems)	20%-40%
Tests to evaluate objectives of skills (Participation in group sessions, Simulation tests, Participation in cases / problems Rol playing, Reports)	20%-40%
Tests to evaluate attitudes (Participation in class, attitudes assessment rubric)	10%-10%
Final examination of competencies-final test of the whole, includes different types of the aforementioned tests)	20%-40%

When you access the course on the *Campus Virtual*, you'll find a description of the assessment activities you have to complete, as well as the delivery deadline and assessment procedure for each one.

7.1. First exam period

- Exams, tests and other test and alternative techniques of assessment 35%
- Writing of articles, reports and project and Transversal skills 35% of the final grade
- Homework 30% of the final grade

To pass the course in the first exam period, you must obtain a final course grade of at least 5 out of 10 (weighted average). Minimums needed to pass:

- To obtain 5 points over 10 points of the final exam.
- To obtain 5 points over 10 points of the final project.
- To obtain 5 points over 10 points of the homework.
- In order to be evaluated you must have a minimum of 50% attendance (ATTENDANCE IS VALID ONLY REGISTERED IN THE GRP SYSTEM)

The failed assignments, homework or lab reports during academic year can be submitted on extraordinary session. To pass the course, each assignment shall have, at least, five points out of ten and it is mandatory to pass all assignments, activities and exams. If the student fails or does not submit some activities these activities will not be considered for the average of the final grade.

In the case, when the student do not reached the minimum required to pass any evaluable activity. The final grade will be:

- The mean average when the mean value is less than or equal to 4
- 4 if the value of the mean average is greater than 4

The grade will be considered as NP (Not Presented) when the student has not delivered any evaluable activity of which they are part of the weighted average.

7.2. Second exam period

Assessment activities:

- Realization of different tasks, problems and practical exercises, individually 20%
- Realization of laboratory practices and report 10%
- Realization of a project 20%
- Oral presentations presentation of the project 15%.
- Final exam 35%

To pass the course in the second exam period, you must obtain a final grade of at least 5 out of 10 (weighted average).

In the case, when the student do not reached the minimum required to pass any evaluable activity. The final grade will be:

- The mean average when the mean value is less than or equal to 4
- 4 if the value of the mean average is greater than 4

The grade will be considered as NP (Not Presented) when the student has not delivered any evaluable activity of which they are part of the weighted average.

8. SCHEDULE

This table shows the delivery deadline for each assessable activity in the course:

Assessable activities	Deadline
Activity 1. Resolution of exercises, problems, tests and practical work	Semana 4-5
Activity 2. Laboratory and workshop practices	Semana 6-15
Activity 3. Project Based Learning) / Preparation of real or simulated projects (through project-based learning methodology).	Semana 16
Activity 4 Assessment test	Last week

This schedule may be subject to changes for logistical reasons relating to the activities. The student will be notified of any change as and when appropriate.

9. BIBLIOGRAPHY

- Introducción a los procesos de fabricación. M. del Mar Espinosa Escudero
- Introduction to Manufacturing Processes 1st Edition, Mikell P. Groover.
- Kents Mechanical Engineers Handbook 11TH Edition, William Kent

10. DIVERSITY MANAGEMENT UNIT

Students with specific learning support needs:

Curricular adaptations and adjustments for students with specific learning support needs, in order to guarantee equal opportunities, will be overseen by the Diversity Management Unit (UAD: Unidad de Atención a la Diversidad).

It is compulsory for this Unit to issue a curricular adaptation/adjustment report, and therefore students with specific learning support needs should contact the Unit at unidad.diversidad@universidadeuropea.es at the beginning of each semester.