

28825 - Manufacturing Processes II

Syllabus Information

Academic Year: 2020/21

Subject: 28825 - Manufacturing Processes II

Faculty / School: 175 - Escuela Universitaria Politécnica de La Almunia

Degree: 424 - Bachelor's Degree in Mechatronic Engineering

ECTS: 6.0

Year: 3

Semester: Second semester

Subject Type: Compulsory

Module: ---

1.General information

1.1.Aims of the course

The course and its expected results respond to the following approaches and goals:

The great variety of objects, parts, products ... that are on the market have been made through a more or less complex production process. This course provides the keys to determine some of them.

A production process is related to the quality of the product, the economy of the product, functionality and application of that product.

Connecting these variables means that the student will be able to select materials, machines, tools, processing and measuring instruments, etc ... to get the product finished.

The subject has a technological and applied nature. Selecting a production process is a global aim in the course.

1.2.Context and importance of this course in the degree

Each course which the degree is made up of intends to cover a field in the Technological and Scientific training of the student. In this case the selection of a process. Success in the afore-mentioned task will condition the viability of the product, both in technical and business levels

Learning about the manufacturing processes and industrial activities connected to them is essential to run and manage a company or part of it.

It is important to be able to take part in the design of components suggesting improvements and alternatives, getting their skills better or getting to reach their goals more efficiently.

1.3.Recommendations to take this course

There are no prior requirements for taking this course. However, the content to be studied will need the use of the skills and abilities acquired, mainly, in the subjects of Graphic Expression, Statistics, Physics, Mathematics and Manufacturing Processes I.

2.Learning goals

2.1.Competences

The student will acquire generic and specific skills:

GI03: Knowledge of basic and technological subjects, enabling them to learn new methods and theories, and

provide them with versatility to adapt to new situations.

GI04: Ability to solve problems with initiative, decision making, creativity, critical thinking and to communicate and convey knowledge, abilities and skills in the field of Industrial Engineering

GC02: Interpret experimental data, contrast them with the theoretical ones and draw conclusions.

GC03: Ability for abstraction and logical thinking.

GC04: Ability lifelong, self-directed and independent learning

GC05: Ability to evaluate alternatives.

GC08: Ability to locate technical information, as well as its understanding and evaluation.

GC14: Ability to understand the operation and develop maintenance of mechanical, electrical and electronic equipment and installations,.

GC15: Ability to analyze and apply simplified models to technological equipment and applications that allow to make predictions about their behavior.

GC17: Ability to correctly interpret plans and technical documentation. Plan, budget, organize, direct and control tasks, people and resources.

EI07: Knowledge of the principles of machine and mechanism theory.

EI09: Basic knowledge of production and manufacturing systems.

EM04: Applied knowledge of manufacturing systems and processes, metrology and quality control.

2.2.Learning goals

1. Learn about the behavior and technology of materials
2. Select and design the appropriate manufacturing process for a mechanical element.
3. Produce and interpret plans and diagrams based on the appropriate regulations and symbols.

2.3.Importance of learning goals

Successfully selecting a production process is a subject objective that will undoubtedly contribute to improving efficiency in the company. Having a critical attitude towards solutions already used, so that they motivate the student to go further into the study and analysis of the issues that are the subject of this discipline, favors the formulation of new strategies and encourages innovation.

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

Continuous assessment.

The student must demonstrate that they have achieved the expected learning outcomes by the assessment of the following activities:

- Laboratory Practice Activities: A report of the same must be delivered following a model.
- Exercises, theoretical questions and proposed works: The teacher will propose exercises, problems, practical cases, theoretical questions, or presentation tasks to be done Individually or in groups depending on the case. This activity must be delivered in a timely manner for assessment.

- Written assessment tests: They will consist of a typical written test graded from 0 to 10 points. The final grade of these tests will be the average of all of them, as long as there is no single mark below 3.5 points. In this case final grade will be a fail.

As a summary of the aforementioned policy, the following weight table of the grading process of the different activities in which the continuous assessment process of the subject has been set up

Evaluation activity	Weight
Laboratory practices	10%
Exercises, theoretical questions and proposed works	10%
Written assessment tests	80%

To opt for the Continuous Assessment system, you must attend at least 80% of the practical classes and have completed the assessment activities.

2.- Global Assessment Test

Following the regulations of the University of Zaragoza in this regard, in courses that offer continuous assessment, a global evaluation test will be scheduled for those students who decide to opt for this second system.

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

1. Lectures, given to the whole group, in which the teacher will explain the theory of the subject and solve relevant problems related to the different production processes explained.

In the non-classroom mode, adapted audio-visual teaching material and specific software will be used for independent monitoring of the course.

2. Practical classes. The teacher solves problems or practical cases for illustrative purposes. This type of teaching complements the theory presented in the master classes with practical aspects. In the non-classroom mode audio-visual teaching material adapted for independent monitoring of the subject will be used

3. Laboratory practices. These practices are highly recommended for a better understanding of the subject because elements whose calculation is carried out in lectures are studied in real operation. In the non-classroom mode audio-visual teaching material adapted for independent monitoring of the subject will be used

4. Face-to-face tutorials related to any issues of the course at the scheduled time or via the Moodle virtual platform messaging and forum.

"If classroom teaching were not possible due to health reasons, it would be carried out on-line."

4.2.Learning tasks

Lectures and laboratory practice activities. They will take place four hours per week, until the completion of 60 hours necessary to cover the agenda.

Laboratory practice activities . They will be carried out in subgroups adapted to the room of the laboratory.

Study and personal work. This non-classroom part is worth about 90 hours, necessary for the study of theory, problem solving and note review

Non-classroom generic activities and tutorials. Each teacher will announce a timetable of student assistance throughout the semester

4.3.Syllabus

Unit 1. Shaping Processes by Plastic Deformation. Introduction. Rolling, Forging, Extrusion, Packing, Folding, Applications.

Unit 2. Shaping processes by chip removal. Metal Machining Theory, Cutting Parameters, Cutting tools technology, Geometry, Cutting fluids. High performance machining, assisted manufacturing and plastics and composites shaping processes.

4.4.Course planning and calendar

Classroom sessions calendar and presentation of works

Theory and problem lectures are given at the time scheduled by the School, as well as the periods assigned to practice activities.

The timetable of the classes will be found on the EUPLA website <http://www.eupla.unizar.es/>

In addition, students will have, at the beginning of the course, the dates and places of the examinations.

4.5.Bibliography and recommended resources

http://biblos.unizar.es/br/br_citas.php?codigo=28825&year=2020