

29924 - Manufacturing Technology

Syllabus Information

Academic year: 2023/24

Subject: 29924 - Manufacturing Technology

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 435 - Bachelor's Degree in Chemical Engineering

ECTS: 6.0

Year: 3

Semester: Second semester

Subject type: Compulsory

Module:

1. General information

The goal of the subject is to provide the student with an overview of the different manufacturing processes, as well as the manufacturing systems and technologies necessary for their development in the industrial field. The aim of is for the student to acquire the ability to apply different scientific-technological and economic criteria, as well as strategies for an adequate management, development and control of the production process of a product.

These approaches and goals are aligned with some of the Sustainable Development Goals, SDGs, of the 2030 Agenda () and specific agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>) and certain specific goals, so that the acquisition of the learning results of the subject provides training and competency to the student to contribute to some extent to the achievement of target 9.4 of Goal 9 and target 5 of Objective 12 12.5 of goal 12.

2. Learning results

- Identify different manufacturing processes and systems, including advantages and disadvantages, and defects that their application may present their application.
- Select the most suitable manufacturing processes based on the knowledge of their capabilities and limitations and according to the technological and economical requirements of the product and the market.
- Interpret metrological control guidelines used to ensure the quality of products and processes.
- Know industrial quality models and is able to integrate manufacturing and measurement functions into them.

3. Syllabus

Block 1. Introduction to manufacturing processes (Topic 0)

Block 2. Manufacturing processes and technologies (Topics 1, 2, 3, 3, 4 and 5)

- 2.1. Processes for preforming
- 2.2. Material removal processes
- 2.3. Deformation processes
- 2.4. Joining and assembly processes

Block 3. Manufacturing systems (Topic 3)

Block 4. Metrology and Industrial Quality (Topics 6, 7, 8, 9 and 10)

- 4.1 Metrology
- 4.2 Quality

4. Academic activities

Participative theoretical classes (28 h.), which will include the exposition of contents with presentations and examples, and which will allow the learning of definitions, concepts and theoretical bases of the different manufacturing processes, as well as the rest of the contents of the subject. The programmed learning activities are grouped in the topics indicated in the program.

Practical classes (14 h.), where problems and cases will be developed with the participation of the students.

Laboratory practices (18 h.), six three-hour practical sessions will be held. Internship scripts will be made available in advance to students at.

Study (90 hours), Personal study of the theoretical part of the subject and problems.

Assessment Tests (6 h.)

5. Assessment system

The subject will be assessed in the **global** assessment modality by means of the following activities (laboratory practices and final written laboratory and final written test):

Laboratory practices: 30% of the overall grade, minimum of 4.5 out of 10.

The preparation of a set of reports associated with the practice sessions has been planned. These reports will be submitted by deadlines established by the faculty.

All those students who have not achieved this minimum grade will have to take a specific individual test during the assessment period in the two official call.

Final written theoretical-practical test: 70% of the overall grade, minimum of 4.5 out of 10.

It will consist of theoretical-practical questions and problems, to be carried out in the two official call.

The test will consist of two distinct parts:

- Theoretical part that will represent 45% of the grade of the test.
- Problem solving part valued at 55% of the test grade.

Minimum grade of 4 points out of 10 to be able to average. Once the minimum grade has been reached in each of the parts, it will be necessary to obtain a minimum grade of 4.5 out of 10 to be able to average with the grade associated to the laboratory practices.

Students who wish to do so may eliminate the theoretical part of the subject by means of a midterm exam indicated at beginning of the four-month period. In order for such elimination to be effective, the student must obtain a minimum grade of 4.0 points out of 10.

The **overall grade** for the subject will be obtained from the weighted average of the two tests, being necessary to obtain a value equal to or higher than 5.0 to pass. The results obtained in the tests passed will be maintained until the end of the academic year.