

29825 - Manufacturing Technology

Syllabus Information

Academic year: 2023/24

Subject: 29825 - Manufacturing Technology

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

326 - Escuela Universitaria Politécnica de Teruel

Degree: 440 - Bachelor's Degree in Electronic and Automatic Engineering

444 - Bachelor's Degree in Electronic and Automatic Engineering

ECTS: 6.0

Year: 3

Semester: Second semester

Subject type: Compulsory

Module:

1. General information

This subject, as a common and mandatory element in the training of any future graduate belonging to the Industrial Branch, tries to cover the main aspects of Manufacturing Technologies that students may encounter in their professional future, providing them with a solid base from which to face and solve certain problems of the particular field of the Degree in Electronic and Automation Engineering. It is considered advisable to have previously passed the subjects of Graphic Expression and Computer Aided Design and Materials Engineering.

These approaches and objectives are aligned with some of the Sustainable Development Goals, SDGs, of the Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>) and certain specific targets, such that the acquisition of the learning results of the subject provides training and competence to the student to contribute to some extent to their achievement: targets 8.1 and 8.2 of goal 8, target 9.4 of goal 9 and targets 12.2, 12.4, 12.5 and 12.8 of goal 12.

2. Learning results

- Acquire a broad knowledge base based on scientific, technological and economic criteria on the different manufacturing processes and systems.
- Identify their advantages and disadvantages, as well as the defects that may be present in their application, the means to control and avoid them.
- Select the most suitable manufacturing processes based on the knowledge of their capabilities and limitations and according to the technological, technical and economical requirements of the product and the market.
- Recognize and applies the basic considerations for setting up a process sheet
- Interpret metrological control guidelines used to ensure the quality of products and processes. Know the different existing automation systems and levels, selecting the most appropriate one according to the productivity and flexibility criteria
- Know industrial quality models and is capable of integrating manufacturing and measurement functions into these models. Acquire a critical attitude towards solutions already used, so as to encourage him/her to deepen the study and analysis of the topics covered in this discipline and to propose innovative strategies.

3. Syllabus

Theoretical-practical syllabus:

- Block 1. Introduction to manufacturing processes.
- Block 2. Manufacturing processes and technologies.

 Prefforming processes.

 Material removal processes.

 Deformation processes.

 Bonding processes.

- Block 3. Manufacturing systems.
- Block 4. Metrology and industrial quality.

 Metrology.

 Quality.

Laboratory/workshop practices:

- Foundry.

- Deformation.
- Separating (Lathe, Milling, Grinding, EDM,...).
- Welding.
- Measurement in dimensional metrology.
- Maintenance.

4. Academic activities

Attendance to all learning activities is of special relevance to acquire the competencies of the subject.

- Lectures (28 hours).
- Problem classes and case resolution (14 hours).
- Laboratory practices (18 hours).
- Study and teamwork (85 hours).
- Assessment tests (5 hours)

At EUPT, the degree is offered in two different modalities: on-site and blended learning. For the presential modality all of the above applies. For the blended mode, theory and problems classes will be held at through adapted teaching material available in Moodle and virtual tutorials, and the practical classes will be concentrated in two days.

5. Assessment system

- Laboratory practices: It represents 30% of the final grade of the subject. This test is associated with the practical sessions. Thus, the work done during these sessions throughout the course will be evaluated, and must obtain a minimum grade of 4.5 out of 10 points (representing 30% of the total grade) to be able to average with the grade associated with the written exams. However, all those students who have not achieved this minimum grade will have to take a specific individual test during the assessment period in the official exams.
- Written exams: It represents 70% of the final grade. It will be composed of theoretical questions - practical/problems, to be carried out in the official calls. This test will be graded from 0 to 10 points, and a minimum grade of 4 points must be obtained in each part in order to average with the grade associated to the laboratory practices. The total of this grade will represent 70% of the total grade. Students who wish to do so may eliminate material from this final test, to be taken at the official, by means of the tests given at the end of each class/topic during the course, on a voluntary basis.

In order for such elimination to be effective, the student must obtain a minimum grade of 5 out of 10 points.

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

In any case, the student will always have the possibility of passing the course by means of a global evaluation in assessment official dates established by the center.