

25880 - Manufacturing processes

Syllabus Information

Academic year: 2024/25

Subject: 25880 - Manufacturing processes

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 558 - Bachelor's Degree in Industrial Design and Product Development Engineering

ECTS: 6.0

Year: 3

Semester: First semester

Subject type: Compulsory

Module:

1. General information

The general objective of the contents of the course is that the student knows the manufacturing processes and their applications and determining factors when manufacturing the product. The processes of casting, molding, injection and sintering , plastic deformation forming, plastic forming and glass technologies, as well as joining and assembly processes are analyzed.

It is advisable to take simultaneously with Design Workshop IV and Resistance of Materials and to have passed the subjects Materials, Graphic Expression and Computer Aided Design.

2. Learning results

- Identify different manufacturing processes and systems, including advantages and disadvantages, and shortcomings that may be present in 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 the metrological control guidelines used to ensure the quality of products and processes.
- Know industrial quality models and be capable of integrating manufacturing and measurement functions into these models.

3. Syllabus

Theoretical-practical class syllabus:

- Introduction. Integration of design and manufacturing
- Classification of processes.
- Joining and assembly: fixed (adhesive, rivet, welding) and removable (fitting, bolting) joints.
- Deformation: rolling, forging, extrusion and drawing and sheet and tube working.
- Preforming processes: casting, non-permanent molds, permanent molds, injection, sintering and plastics.
- Fundamentals of quality in industrial processes.

Program of practical sessions:

- Welding
- Deformation
- Foundry
- Quality

4. Academic activities

The programmed learning activities are grouped into the topics indicated in the program. Several practical works will be developed that will help to understand and assimilate the theoretical concepts necessary for the subject. The practical sessions have been programmed to be devoted to the topics indicated in the program.

Lectures 32h

Problem solving and case studies 10h.

Laboratory practices 18h.

Practical application or research work 20h.

Personalized tutoring teacher - student 5h.

Theory study 60h.

Evaluation tests 5h

5. Assessment system

The student must demonstrate achievement of the intended learning results through the assessment activities:

60% Direct assessment with a compulsory general exam in which a grade higher than 4.5 out of 10 must be obtained in order to compensate with the rest of the grades and pass the subject.

40% Grading of practical exercises and work based on exercises and work reports. The exercises and reports of work and their due dates will be defined at the beginning of the term and will appear in the "moodle" course of the subject in the Digital Teaching Ring (ADD). A grade higher than 4.5 out of 10 must be obtained in each activity in order to compensate with the rest of the grades and pass the subject.

Note: Following the regulations of the University of Zaragoza in this regard, in the subjects that have continuous or gradual assessment systems, a global assessment test will also be scheduled for those students who decide to opt for this second system.

6. Sustainable Development Goals

9 - Industry, Innovation and Infrastructure

12 - Responsible Production and Consumption