

30015 - Manufacturing Processes and Industrial Drawing

Información del Plan Docente

Academic Year	2016/17
Academic center	110 - Escuela de Ingeniería y Arquitectura
Degree	436 - Bachelor's Degree in Industrial Engineering Technology
ECTS	6.0
Course	2
Period	Second semester
Subject Type	Compulsory
Module	---

1. Basic info

1.1. Recommendations to take this course

1.2. Activities and key dates for the course

2. Initiation

2.1. Learning outcomes that define the subject

2.2. Introduction

3. Context and competences

3.1. Goals

3.2. Context and meaning of the subject in the degree

3.3. Competences

3.4. Importance of learning outcomes

4. Evaluation

5. Activities and resources

5.1. General methodological presentation

The general aim of this subject is learning the main aspects of manufacturing of mechanical components by casting, deformation and welding processes, as well as their representation by industrial design techniques.

5.2. Learning activities

In sessions of classroom -whole group- the more theoretical aspects are addressed in the form of master class and completed with technical case study. The practical sessions take place in smaller groups to work with specialized applications and equipment manufacturing workshop. In addition, it develops a tutored project.

5.3.Program

A.-Industrial Drawing

Theoretical Contents:

- Standardization applied to Technical Drawing.
- Assembly drawings, parts list and part drawings.
- Materials used to manufacture.
- Representation of threads and threaded joints. Designation of screws and nuts.
- Standard roughness values. Graphical symbols of surface texture.
- Indication of dimensional, geometrical and general tolerances.
- Representation and designation of joint and safety elements.
- Representation and designation of bearings and their accessories.
- Representation of gears and actuating elements.
- Representation of hydraulic systems.

CAD Practical Sessions:

- Guided practice.
- Three-dimensional design of a piece.
- Three-dimensional development of the project work

B.- Manufacturing Processes

I) Introduction, concept and classification of manufacturing processes

II) Molding and casting processes

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1. Principles of foundry processes
2. Casting and injection molding
3. Polymers transformation

III) Metal forming processes

1. Plastic deformation
2. Rolling
3. Forge
4. Extrusion and drawing
5. Sheet forming

IV) Joining processes

- a. Welding processes
- b. Thermal cutting

Manufacturing Laboratory

One session to three main parts of classroom theory: Deformation, molding and welding processes

5.4.Planning and scheduling

6 ECTS: 150 h / student:

1. Block manufacturing processes: (classroom + laboratory of metal manufacturing + exams)
2. Block industrial drawing: (master class + practical learning+ drawing work + exams)

5.5.Bibliography and recommended resources