28821 - Manufacturing Processes I

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

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

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

1. Lectures: Given to the whole group, basically given by the teacher, in such a way as to explain the theoretical supports of the subject.
2. Practical lessons: The teacher solves problems or practical cases for illustrative purposes. This type of teaching complements the theory explained in the lectures with practical aspects.
3. Laboratory practice tasks. Students will carry out tests, measurements, joint assemblies, etc., in the workshop and in the laboratory in the presence of the trainee teacher.
4. Individual tutorials. On-site activities related to any issues of the subject at a specific agreed on time or via the Moodle virtual classroom.

4.2.Learning tasks

Theoretical / practical lessons. Two or four hours a week, until the 46 hours needed to cover the syllabus are completed.

Lab practice tasks. Seven sessions will be held with two hours per session with subgroups adapted to the laboratory capacity.

Study and personal work. This off-site part is given about 90 hours, necessary for the study of the theory, problem solving and questionnaires, work production and revision of scripts.

Tutorials and generic off-site activities. Each teacher will publish student service timetable throughout the four-month perio

4.3.Syllabus

THEORETICAL CONTENTS:

Unit 1. Metrology.Introduction.Measuring instruments.Direct measures.Tolerances.Metrology Practice tasks.

Unit 2. Quality Control.History of quality control.Basic concepts.Process management and total quality.Process capacity.Types of controls. Benefits of quality

Unit 3. Molding. Introduction.Sand, shell, centrifugal Casting. Casting processes, Mold design, Defectology.

Unit 4. Joint and assembly processes. Introduction.Fusion welding processes.Solid state welding, welding metallurgy.Joints with adhesives.Threaded fasteners.Rivets, Press Adjustments.Springs.

PRACTICAL CONTENTS:

MechanicalelementsMeasuraments:
- Control of threads and gears. Measurement of angles and conicity.
- Verification of tolerances (dimensional and geometric) in axis, depths, distance between holes
- Measurement and Sketching of a component.
Roughness: Evaluating different machined surfaces.
Practice tasks on welded and / or screwed joints:
Carry out a binding system in a practical way and report it.

4.4.Course planning and calendar

The lectures and problem lessons are taught in the timetable organized by the School, as well as the hours assigned to laboratory practice tasks.

For the students in continous evaluation system, the writen test will be held in the end of each section.
The final dates will be announced during the scholar year in the Moodle.

The issues on which the presentations will be developed will be posed before the 10th week. The deadline will be the last

teaching day of the subject.

The weekly schedule of the subject will be published at
http://www.eupla.unizar.es/asuntos-academicos/calendario-y-horarios

The dates of the global evaluation test (official calls) will be published at
http://eupla.unizar.es/asuntos-academicos/examenes

4.5.Bibliography and recommended resources