Universidad Zaragoza

29703 - Graphic expression and computer aided design

<u>**Información del Plan Docente**</u>

Academic Year	2018/19
Subject	29703 - Graphic expression and computer aided design
Faculty / School	110 - Escuela de Ingeniería y Arquitectura
Degree	434 - Bachelor's Degree in Mechanical Engineering
ECTS	6.0
Year	1
Semester	Half-yearly
Subject Type	Basic Education
Module	

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

The methodology followed in this course is oriented towards achievement of the learning objectives. It is based on participation and the active role of the student favors the development of communication and decision-making skills. A wide range of teaching and learning tasks are implemented, such as lectures, guided assignments, laboratory sessions, autonomous work, and tutorials.

Students are expected to participate actively in the class throughout the semester.

Further information regarding the course will be provided on the first day of class.

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4.2.Learning tasks

The course includes 6 ECTS organized according to:

- Lectures (1.8 ECTS): 45 hours.

- Laboratory sessions (0.6 ECTS): 15 hours.

- Guided assignments (0.6 ECTS): 15 hours.

- Autonomous work (2.8 ECTS): 70 hours.

- Tutorials (0.2 ECTS): 5 hours.

Lectures: the professor will explain the theoretical contents of the course and solve illustrative applied problems. These problems and exercises can be found in the problem set provided at the beginning of the semester. Lectures run for 3 weekly hours. Although it is not a mandatory activity, regular attendance is highly recommended.

Laboratory sessions: sessions will take place every 2 weeks (5 sessions in total) and last 3.0 hours each. Students will work together in groups actively doing tasks such as practical demonstrations, measurements, calculations, and the use of graphical and analytical methods.

Guided assignments: students will complete assignments, problems and exercises related to concepts seen in laboratory sessions and lectures. They will be submitted at the beginning of every laboratory sessions to be discussed and analyzed. If assignments are submitted later, students will not be able to take the assessment test.

Autonomous work: students are expected to spend about 75 hours to study theory, solve problems, prepare lab sessions, and take exams.

Tutorials: the professor's office hours will be posted on the degree website to assist students with questions and doubts. It is beneficial for the student to come with clear and specific questions.

4.3.Syllabus

Standardization and Industrial Drawing

- Introduction to Graphic Expression.
- Standardization and Computer Aided Design.
- Tools and equipment for drawing.
- Formats, scales, line types and writing.
- Diedric views. Representation of threads and gears.
- Cuts and sections.
- Dimensioning.

Diedric system

- Representation of point, line and plane.
- Intersection of lines and planes.
- Parallelism.
- Perpendicularity.
- Change of Plans Projection.
- Partial View Single and Double.
- Giration.
- Projection elements to a plane.
- Measurement of distances.
- Measurement of angles.

Surfaces

- Contour apparent and representation of surfaces.
- Defining and building surfaces.
- Flat sections and intersection straight.
- Intersection of surfaces.
- Development of surfaces.
- Applications: Elbows and adapters.

System dimension drawings

- Representation of the point, the line and the plane.
- Status of lines in a plane.
- Find the given slope plane passing through a line.
- Intersection of lines and planes.
- Resolution of roofs of buildings.

PRACTICAL CLASSES.

1. Explanation Command CAD package.
2. Realization, guided by the teacher, one-piece 2D.
3. Making a single piece 2D medium complexity.
4. Individual Making a 2D piece of high complexity.
5. Using symbol libraries with blocks and attributes.
6. Creating a complete plan with title block and file printing.

4.4.Course planning and calendar

For further details concerning the timetable, classroom and further information regarding this course please refer to the "Escuela de Ingeniería y Arquitectura " website (https://eina.unizar.es/)

4.5.Bibliography and recommended resources