

## 28803 - Graphic expression

### Información del Plan Docente

Academic Year	2018/19
Subject	28803 - Graphic expression
Faculty / School	175 - Escuela Universitaria Politécnica de La Almunia
Degree	424 - Bachelor's Degree in Mechatronic Engineering
ECTS	6.0
Year	1
Semester	First semester
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 learning process that is designed for this subject is based on the following:

- **Lectures:** theoretical activities conducted by the teacher, so that the theoretical support of the subject is given, highlighting the major issues, structuring them on chapters and / or sections and connecting them to each other.
- **Classroom practice work/seminars/workshops:** Theoretical discussion activities or practice work preferably performed in the classroom and requiring high student participation
- **Lab Practice work:** The total group of master classes will be divided into several groups according to the number of students enrolled, but never more than 20 students, so that smaller groups are formed. CAD-CAE Practical Activities with the relevant software will be made in the Technical Office classroom.
- **Individual tutorials:** These are made on a one-to-one basis, at the department. They aim to help solving problems

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that are the students might have, particularly those which for several reasons cannot attend group tutorials or need a more personalized attention. These tutorials may be face-to-face or virtual (Moodle or e-mail) in a timetable published on the EUPLA website

### 4.2.Learning tasks

**The program that the students are offered to help them achieve the expected results involves the following activities...**

... which involve the active participation of the students, so that, to achieve the learning outcomes (Considering the experimental level is high, which means a 2h a week for Theory, 2h for practice work and 6 for other activities), no redundancy intended with the above mentioned, the following activities will be developed

- **Theoretical-Practical classes (Classroom 30h):** The concepts and procedures of the subject will be developed and practical examples as support will be developed. Also, problems and case studies will be done to complement the theoretical concepts studied
- **Lab practice work (30h):** Students will be divided into several groups not bigger than 20 students / being monitored by the teacher and they will develop the concepts and procedures in CAD-CAE
- **Tutorials:** Monitored autonomous activities: Although they will rather have a mixed nature between face-to-face and non-class tuition they have been considered separately and will be focused mainly to seminars and tutorials under the supervision of the teacher.
- **Personal Study:** Assimilation of the concepts and procedures for a proper learning process
- **Assessment test:** Individual test where the student show his level of understanding and competence on the subject.

### 4.3.Syllabus

**Essential Contents of the subject for the achievement of learning outcomes**

#### 1 Technical Drawing and Representation Systems

##### 1-1.- Geometric Plotting. Basic standardization.

- Sketching
- Dimension Drawing
- Views and Sections
- Thread Representation
- Cone-shaping, Convergence, Tilt or Pending

##### 1-2.- Industrial Technical Drawing. Advanced Standards

- Detachable and Fixed Joint
- Tolerances. Fundamental concepts
- Gearwheels
- Bearings

#### 2 Knowledge and application of CAD / CAE Tools

##### 2-1.- Knowledge and Applications in the development of CAD / CAE (I).

- Introduction to the Modeling Process
- Working with Sketches
- Introduction to Operations
- Assemblies (Sets, Groups or Functional Units)

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- DocumentationPresentation -Exploding-

### 2.2 Knowledge and Application in the Development of CAD-CAE (II)

- Scheme Development Software

### 4.4.Course planning and calendar

The Theory and Problem-Solving Lectures and the practical sessions in the laboratory are given according to the schedule set up by the School and it is published, prior to the start date of the course, on the EUPLA website, as well as the tutorial schedule.

The most significant dates -**Planning of the Subject**- (initial test, work proposals, and presentations and evaluation test) will be explained in the classroom, at the beginning of the course and in the Moodle Virtual Classroom.

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://www.eupla.unizar.es/asuntos-academicos/examenes>

### 4.5.Bibliography and recommended resources

#### **RESOURCES:**

- Access to the subject documentation using the Moodle platform
- Freehand drawing tools and pendrive