Universidad Zaragoza

30003 - Graphic expression and computer-assisted design

Academic Year	2017/18
Faculty / School	110 - Escuela de Ingeniería y Arquitectura
Degree	436 - Bachelor's Degree in Industrial Engineering Technology
ECTS	6.0
Year	1
Semester	Half-yearly
Subject Type	Basic Education
Module	---

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

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

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

The learning process that is designed for this subject is based on:

The teaching process will be developed in four main levels:

a) theory classes,

b) exercise classes,

c) laboratory classes and

d) supervised practices; with increasing level of student participation.

In the theory classes, the constents Standardization Industrial Drawing and Descriptive Geometry will be taugth, illustrated with numerous examples each topic. In the exercise classes, the students will solve exercises under the supervision of a teacher.

The laboratory practices will be developed in small groups, where the student will handle the software of Computer Aided Design.

The supervised practices will consist of individual or group homework of technical applications that the student will develop with the guidance and supervision of the teacher.

5.2.Learning tasks

5.3.Syllabus

The main contents are summarized in the following points:

STANDARDIZATION AND INDUSTRIAL DRAWING: Introduction to Graphic for Engineers. Standardization and Computer Aided Design. Drawing instruments and drafting machines. Formats, scales, line types and lettering. Orthographic views. Representation of threads and gears. Broken-out and sections. Dimensioning.

CIVIL ENGINEERING APPLICATIONS: The top view of the point, the line and the plane. Intersection of lines and planes. Resolution of roofs of buildings. The graphical representation of the top of the earth: Contours, drawing lines of constant slope, profiles, earthworks, road layout.

DESCRIPTIVE GEOMETRY: Techniques of labering points, lines and planes. Intersections of lines and planes. Parallelism. Orthogonality. Auxiliary views. Rotations. True size of a plane. The true-length diagram. Distances. Angle between lines and planes.

SURFACES: Contour apparent and representation of surfaces. Defining and types of surfaces. Sections and intersection of lines. Intersections of surfaces. Development of surfaces. Applications: Elbows and transition pieces.

COMPUTER AIDED DESIGN: Introduction and general operation of the software. Main screen. Command imput. Function keys. File management. Environment of software. Drawing aids. Coordinate systems. Display commands. Drawing commands. Selecting entities. Reference entities. Editing commands. Working with layers. Text and shading. Dimensioning. Blocks: creation and insertion. Attributes. Attribute listing. Introduction to 3D design.

5.4.Course planning and calendar

5.5.Bibliography and recommended resources