Engineering Graphics

Academic Year: (2022 / 2023)   Review date: 18-05-2022

Department assigned to the subject: Mechanical Engineering Department

Coordinating teacher: RUBIO RUIZ DE AGUIRRE, MARIA LOURDES

Type: Basic Core ECTS Credits : 6.0

Year : 1 Semester : 2

Branch of knowledge: Engineering and Architecture

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Students are supposed to have studied Technical Drawing in the High School
Students will use a CAD software that is in Spanish.

OBJECTIVES

1. Know, interpret and use the representation systems, their geometric foundation and the conventions and standardized symbols that underlie industrial design and computer-aided design.
2. Apply your knowledge and understanding to read, interpret and correctly develop industrial drafts.
3. Understand and use different methods to graphically express ideas, designs and projects in a precise, clear, unambiguous and standardized manner.
4. Develop technical level and computer-aided design laboratory tasks.
5. Select and use appropriate tools and methods to graphically document industrial designs.
6. Combine theory and practice to solve problems of engineering graphics.
7. Work effectively both individually and as a team

DESCRIPTION OF CONTENTS: PROGRAMME

1. Standardized representation systems.
1.1. Ortographic projection
1.2. Isometric projection
2. Representation of industrial assemblies
2.1. Representation of parts
2.2. Dimensioning
2.3. Standardized representation of basic industrial elements
2.4. Representation of industrial assemblies
3. Dimensional and geometric tolerances
4. Computer Aided Design

LEARNING ACTIVITIES AND METHODOLOGY

Theoretical lectures
Drawing exercises in class
Computer exercises by CAD
Personal and group working.
Mechanical Drawings
Office hours for students

ASSESSMENT SYSTEM

Final Exam for the course: 49%

Continuous Assessment:51%

Criteria:

¿   Continuous assesment first part (EC1): 4.5%
¿   Continuous assesment second part (EC2): 7.5%
¿   Continuous assesment third part (EC3): 9%

¿   Class work (TC):

Deliverables (L): 20%
Lab DAC (DAC): 10%

¿   Final exam, made of three parts:
   o   Final exam of the first part (EF1): 10.5%
   o   Final exam of the second part (EF2): 17.5%
   o   Final exam of the third part (EF3): 21%

****In order to pass de course a grade >=5 points should be obtained*****
In order to pass de course a grade >=3.5 points should be obtained in DAC Laboratory.

If the student passes a part of the continuous assesment, the following must be taken account (the marks are refered to 10 points):
¿   the three continuous assesments have been passed (EC1 >= 5, EC2 >= 5 y EC3 >= 5), the final mark will be:

$$NOTA\ FINAL = 0{,}2\ L + 0.1\ DAC + 0.15 \times EC1 + 0.25 \times EC2 + 0.3 \times EC3$$

¿   with one or more fails in the continuous assesments the califications will be calculated as following:

EC1>=5; EC2<5; EC3<5:   NOTA FINAL= 0,2 L +0.1 DAC+0,15*EC1+0,075*EC2+0, 175*EF2+0,09*EC3+0,21*EF3

EC1>=5; EC2>=5; EC3<5:   NOTA FINAL= 0,2 L +0.1 DAC+0,15*EC1+0,25*EC2+0,09*EC3+0, 21*EF3

EC1>=5; EC2<5; EC3>=5:   NOTA FINAL= 0,2 L +0.1 DAC+0,15*EC1+0,075*EC2+0. 175*EF2+0,3*EC3

EC1<5; EC2>=5; EC3<5:   NOTA FINAL= 0,3*TC+0,06*EC1+0,14*EF1+0,2*EC2+0,09*EC3+0, 21*EF3

EC1<5; EC2<5; EC3>=5:   NOTA FINAL= 0,3*TC+0,06*EC1+0,14*EF1+0,06*EC2+0,14*EF2+0. 3*EC3

EC1<5; EC2>=5; EC3>=5:   NOTA FINAL= 0,3*TC+0,06*EC1+0,14*EF1+0,2*EC2+0,3*EC3

EC1<5; EC2>=5; EC3<5:   NOTA FINAL= 0,2 L +0.1 DAC+0,045*EC1+0,105*EF1+0, 25*EC2+0,09*EC3+0,21*EF3

EC1<5; EC2<5; EC3>=5:   NOTA FINAL= 0,2 L +0.1 DAC+0,045*EC1+0,105*EF1+0, 075*EC2+0,175*EF2+0.3*EC3

EC1<5; EC2>=5; EC3>=5:   NOTA FINAL= 0,2 L +0.1 DAC+0,045*EC1+0,105*EF1+0, 25*EC2+0,3*EC3

EC1<5; EC2<5; EC3<5 : NOTA FINAL=0,2 L+0.1 DAC+0,045*EC1+0,105*EF1+0,075*EC2+0, 175*EF2+0,09*EC3+0,21*EF3

To pass the course a minimum of 35% of the calification of each exam is needed.

For the retake, the student will examine the whole course and the final mark will be calculated:
1.   If the student followed the continuous assesment, the calculation is as in the ordinary call. Following the expression:

NOTA FINAL=0,2 L +0.1 DAC+0,045*EC1+0,075*EC2+0,09*EC3+0,49*mark final assesement

To pass the course a minimum of 35% of the calification of the exam as a whole is needed.

2.   If the student did not follow the continuous assesment, the mark will be over the 100% of the exam.

Nevertheless, the mark will be calculated as in point number 1 or number 2, that that suits best.

% end-of-term-examination: 49

% of continuous assessment (assigments, laboratory, practicals…): 51

BASIC BIBLIOGRAPHY
- Jesús Félez; Mª Luisa Martínez Dibujo Industrial, Síntesis, 1996
- Meneses, Álvarez, Rodríguez Introducción al Solid Edge, Thomson Paraninfo, 2007

ADDITIONAL BIBLIOGRAPHY
- B. Ramos Barbero y E. García Maté Dibujo Técnico, AENOR.
- C. Preciado y F.J. Moral Normalización del dibujo técnico, Ed. Donostiarra.
- F. J. Rodríguez de Abajo y R. Galarraga Normalización del dibujo industrial, Ed. Donostiarra, 1993
- Izquierdo Asensi Geometría descriptiva, Autor.
- Varios autores Normas UNE, UNE.