Engineering Graphics

Academic Year: (2020 / 2021) **Review date: 10/07/2020 13:27:41**

Department assigned to the subject: Mechanical Engineering Department

Coordinating teacher: SANTOS CUADROS, SILVIA

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 expected to have completed Technical Drawing in the High School.

OBJECTIVES

Upon successful completion of this subject, students will be able to:
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.- Normalized representation systems:
 1.1.- Descriptive Geometry (Ortographic Projection)
 1.2.- Axonometric system
2.-Normalized representation of basic industrial elements.
 2.1. - Industrial drawing rules.
 2.2.- Axiliary views, cross sections.
 2.3.- Assembly and part drawings.
 2.4.- Dimensioning rules.
 2.5.- Dimensional and geometrical tolerances, and fittings.
3.-Computed assisted design
 3.1.- Modelling
 3.2.- Assembly
 3.3.- Drafts

LEARNING ACTIVITIES AND METHODOLOGY

Theoretical presentations in master classes
Drawing exercises
Computer exercises by CAD software
Personal and group working
Realization of drafts
Group work to design assemblies

ASSESSMENT SYSTEM

% end-of-term-examination/test:	49
% of continuous assessment (assigments, laboratory, practicals…):	51

Assessment system:

- Continuous assessment: 51%
- End-of-term-examination: 49%

The subject will be evaluated according to the following criteria:

¿ Continuous evaluation of the first part of the subject (EC1): Up to 0,6 points
¿ Continuous evaluation of the second part of the subject (EC2): Up to 0,6 points
¿ Continuous evaluation of the third part of the subject (EC3): Up to 0,9 points
¿ Class work (CW): Up to 3 points
¿ Final exam, composed by three parts:
- Final exam of the first part of the subject (EF1): Up to 1,4 points
- Final exam of the second part of the subject (EF2): Up to 1,4 points
- Final exam of the third part of the subject (EF3): Up to 2,1 points

If any part of the continuous evaluation is passed, the attendance to the exam of that corresponding passed part of the subject is released. In such a case (all grades are out of 10 points):

¿ If the student passes the three parts of the continuous evaluation (that is, EC1 greater than or equal to 5, EC2 greater than or equal to 5 and EC3 greater than or equal to 5), the student will not attend the final exam, and her/his final grade will be calculated as:

FINAL GRADE= 0,3 * CW + 0,2 * EC1 + 0,2 * EC2 + 0,3 * EC3

¿ If the student does not pass some of the parts of the continuous evaluation, the student will attend those failed parts in the final exam, and her/his final grade will be calculated according to the following equations:

- If EC1>=5; EC2<5; EC3<5: FINAL GRADE= 0,3*CW+0,2*EC1+0,06*EC2+0,14*EF2+0, 09*EC3+0,21*EF3

- If EC1>=5; EC2>=5; EC3<5: FINAL GRADE= 0,3*CW+0,2*EC1+0,2*EC2+0,09*EC3+0,21*EF3

- If EC1>=5; EC2<5; EC3>=5: FINAL GRADE= 0,3*CW+0,2*EC1+0,06*EC2+0.14*EF2+0,3*EC3

- If EC1<5; EC2>=5; EC3<5: FINAL GRADE= 0,3*CW+0,06*EC1+0,14*EF1+0,2*EC2+0, 09*EC3+0,21*EF3

- If EC1<5; EC2<5; EC3>=5: FINAL GRADE= 0,3*CW+0,06*EC1+0,14*EF1+0,06*EC2+0, 14*EF2+0.3*EC3

- If EC1<5; EC2>=5; EC3>=5: FINAL GRADE= 0,3*CW+0,06*EC1+0,14*EF1+0,2*EC2+0,3*EC3

- If EC1<5; EC2<5; EC3<5 : FINAL GRADE=0,3*CW+0,06*EC1+0,14*EF1+0,06*EC2+0, 14*EF2+0,09*EC3+0,21*EF3

The student must obtain at least 35% of the grade in the final exam to pass the subject.

In the case of the extraordinary call, the student will take the exam with the complete agenda of the subject. However, the following criteria will be considered to calculate the grade:

¿ If the student followed the continuous evaluation process, the exam will have the same percentage value as in the ordinary call. Then, the final grade for the subject will consider the mark of the continuous evaluation and the mark obtained in the final exam.
¿ If the student did not follow the continuous evaluation process, the student will have the right to take an exam in the extraordinary call with a value of 100% of the final grade of the subject.
¿ Although the student had followed the continuous evaluation process, the student will have the right to be graded in the extraordinary call taking into account only the final exam¿s grade when this option is more favourable to him.

BASIC BIBLIOGRAPHY

- Basant Agrawal, C.M. Agrawal Engineering Drawing, McGraw-Hill, 2013

- J. Félez y M. L. Martínez Dibujo industrial, Síntesis.

- Meneses, Álvarez, Rodríguez Introducción al Solid Edge, Paraninfo.

- Sham Tickoo Solid Edge V19 for Designers, Purdue University Calumet, USA, 2006

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.