Industrial Design

Academic Year: (2020 / 2021) **Review date: 22-07-2020**

Department assigned to the subject: Mechanical Engineering Department

Coordinating teacher: GOMEZ AMADOR, ANA MARIA

Type: Compulsory ECTS Credits : 6.0

Year : 4 Semester :

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

- Engineering Graphics
- Machine Mechanics
- Production and Manufacturing Systems
- Machine Theory
- Strength of Materials
- Materials Technology

OBJECTIVES

By the end of this subject, students will be able to have:

1. Understanding of the specific technical documents, concepts and methodology for product design.
2. The ability to apply their knowledge and understanding to identify, formulate and solve product design problems using established methods.
3. The ability to apply their knowledge and understanding to develop and realise designs and components to meet defined and specified requirements.
4. The ability to combine theory and practice to solve problems in product design.
5. Function effectively as an individual and as a member of a team.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction to the mechanical design process
2. Phases of the design process. VDI 2221. Design process tools: DOE, QFD, FMEA, etc.
3. Materials selection
4. Security and regulations: Products security. CE Marking, Risk assessment and Machinery Directive
5. CAD-CAM-CAE systems
6. 3D Printing
7. Biomechanics and ergonomics applied to design
8. Mechanical components: straps and bearings. Acoustics
9. Industrial design practical cases

LEARNING ACTIVITIES AND METHODOLOGY

Lectures will be explained in big groups, exercises for understanding the lectures will be solved and compulsory labs will be carried out.

ASSESSMENT SYSTEM

The work done by the student will be evaluated by a exam/s during the term and a final exam. To pass the subject, the total mark obtained has to be 5 or more and in the mark in the exam has to be as minimum of 4 over 10.

Labs are also part of the evaluation of the subject and its execution is obligaded to pass the subject.

% end-of-term-examination:	60
% of continuous assessment (assigments, laboratory, practicals…):	40

BASIC BIBLIOGRAPHY

- AENOR Marcado CE para máquinas, AENOR, -
- Ribas,Carles Diseño Concurrente , Edicions UPC, 2002
- Richard Budynas, Keith Nisbett Shigley's Mechanical Engineering Design, McGraw-Hill Education, 2014
- Robert L. Mott Diseño de elementos de máquinas, Pearson Educación, 2006
- Ullman, David The Mechanical Design Process, The Mcgraw-Hill, 2010