Industrial Facilities I

Academic Year: (2022 / 2023) **Review date: 30/05/2022 17:36:53**

Department assigned to the subject: Thermal and Fluids Engineering Department

Coordinating teacher: HUETE RUIZ DE LIRA, CESAR

Type: Compulsory ECTS Credits : 3.0

Year : 1 Semester : 2

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Fluid Mechanics, Basic Aerothermochemistry, Basic Physics

OBJECTIVES

Knowledge and skills to design fluid transport, fire fighting, HVAC, noise pollution and energy saving systems.
Knowledge and skills to carry out verification and control of industrial facilities, processes and products.
Knowledge and skills to carry out energy audits.

DESCRIPTION OF CONTENTS: PROGRAMME

1 Fluid transport systems.
2 Fire protection systems.
3 HVAC systems.
4 Noise pollution in industrial facilities.
5 Energy saving and efficiency.
6 Energy audits.

LEARNING ACTIVITIES AND METHODOLOGY

Learning activities will include:
- Master classes, where the knowledge that students must acquire will be presented. To facilitate their development, students will receive class notes and will have basic reference texts to follow the classes and develop further work.
- Resolution of exercises by the student that will serve as a self-assessment and will permit to acquire the necessary skills.
- Problems classes, in which the problems proposed to the students are developed and discussed.
- Practical work that consists of an Industrial Project for Fire Prevention, according to RSCIEI/04.

ASSESSMENT SYSTEM

% end-of-term-examination/test:	50
% of continuous assessment (assigments, laboratory, practicals…):	50

The evaluation system includes the continuous evaluation of the student's work through virtual and/or in-person exams and one project, along with the evaluation through a final written exam in which the knowledge, skills and abilities acquired throughout the course will be globally evaluated. The percentages assigned may vary, depending on the extent and / or difficulty of the work used for continuous evaluation, in the ranges: 40% -70% (continuous evaluation) and 60% -30% (written exam).

BASIC BIBLIOGRAPHY

- Antonio Crespo Mecánica de Fluidos, Thomson.

- Bjorn Karlsson, Quintiere, J. G Enclosure fire dynamics, CRC Press.

- CAM Guía práctica sobre acústica en instalaciones de climatización, Madrid.org, 2010

- Drysdale D An Introduction To Fire Dynamics, Willey.

- G. H. Hundy, A. R. Trott, T. C. Welch Refrigeration and Air-Conditioning, Elsevier.

- Gregorio Millán Barbany Aerothermochemistry, UPM.

- James G. Quintiere Fundamentals of Fire Phenomena, Willey.

- Ministerio para la Transición Ecológica. Reglamento de instalaciones térmicas en los edificios., Ministerio para la Transición Ecológica..

- Normativa UNE 216501. Auditorías energéticas. Requisitos., UNE, 2009

- Wang, S.K. and Lavan, Z. Mechanical Engineering Handbook ¿Air-Conditioning and Refrigeration¿ , CRC Press , 1999

BASIC ELECTRONIC RESOURCES

- Gregorio Millán Barbany . Aerothermochemistry: http://aerobib.aero.upm.es/millan/Libro.htm