

29927 - Thermal Technics

Syllabus Information

Academic Year: 2019/20

Subject: 29927 - Thermal Technics

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 435 - Bachelor's Degree in Chemical Engineering

ECTS: 6.0

Year: 3

Semester: Second semester

Subject Type: Compulsory

Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

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

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The learning process for this subject is based on the following:

1. **Lectures** taught the whole group, in which the teacher will explain the basic principles of the subject and resolve some representative problems of the application of realistic cases to future professional practice. The participation of students in this activity will be sought. In parallel, the student must perform work-study for better utilization of classes.

2. **Tutored** in small groups (couples ideally): students analyze and solve an issue of the subject. Independent learning and group work is enhanced.

3. **Tutorials:** the teacher will provide the student with certain procedures for approach and resolving doubts. The use of these tutorials is highly recommended to ensure adequate progress in learning.

4.2.Learning tasks

In order to achieve the expected learning results, the following activities will be developed:

1. Lectures

2. Tutored assessment in small groups

3. Exercises, examples and problems.

4. Tutorials

4.3.Syllabus

The detailed program of the course will be presented at the beginning of the course by the teacher. This program will cover both theoretical and practical aspects with the following contents:

? Heat production. Basic chemistry. Combustion technology: boilers, furnaces.

? Psychrometry. Humid air properties. Air conditioning processes. Cooling towers.

? Production work. Internal combustion reciprocating engines. Steam and gas turbines. Fuel cells. Compressors: reciprocating and rotary.

? Cold production. Vapour compression systems and vapour absorption cycles. Cryogenic cycles. Liquefaction of gases.

? Heat transfer: Conduction, convection and radiation. Heat exchangers.

4.4.Course planning and calendar

Schedule sessions and presentation of works

Determined at the beginning of the academic year.

Resources

To facilitate and enhance communication between the student and the teacher, you can make available to students if the teacher deems it appropriate, Digital Teaching Platform Ring (ADD) of the University of Zaragoza. Here the teacher can distribute course materials (notes, questions, problems, exam type, tables, etc.), make announcements and notifications to students, send and receive e-mails and make available to students the tools for sending reports of learning activities.

4.5.Bibliography and recommended resources

http://biblos.unizar.es/br/br_citas.php?codigo=29927&year=2019