

Academic Year: ( 2023 / 2024 )

Review date: 21-02-2023

Department assigned to the subject: Thermal and Fluids Engineering Department

Coordinating teacher: SANTANA SANTANA, DOMINGO JOSE

Type: Compulsory ECTS Credits : 3.0

Year : 1 Semester : 1

**REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)**

Heat Transfer  
Thermal Engineering

**OBJECTIVES**

The students will be able to calculate and analyze refrigeration and heating systems

**DESCRIPTION OF CONTENTS: PROGRAMME**

Heating and cooling loads  
Industrial refrigeration systems  
Industrial heating systems  
Heat exchangers

**LEARNING ACTIVITIES AND METHODOLOGY**

Learning activities will consist of:

- Lectures where the fundamental concepts will be presented. Lecture notes and basis references will be provided.
- Assignments will be given so the students can self-evaluate their knowledge and acquire the required skills.
- The assignments proposed to the students will be discussed during the lectures.
- Labs: assignments will be solved in the computer room.
- The group work will be the calculation of thermal loads in buildings

**ASSESSMENT SYSTEM**

The assessment system will consist of 1) a final exam globally evaluating the knowledge, competences and skills acquired and 2) continuous assessment (evaluation of the assignments, labs, et-cetera).

The assessment system includes the continuous evaluation of the student's work and group work

**% end-of-term-examination:** 60

**% of continuous assessment (assignments, laboratory, practicals...):** 40

**BASIC BIBLIOGRAPHY**

- Duffie JA, Beckman WA Solar Engineering of Thermal Processes, John Wiley & Sons, 2013
- Herold KE, Radermacher R, Klein SA Absorption chillers and heat pumps, CRC Press, 1996
- Incropera FP, Dewitt DP, Bergman TL, Lavine AS Fundamentals of Heat and Mass Transfer, John Wiley & Sons, 2007
- Moran MI, Shapiro HN Engineering Thermodynamics, John Wiley & Sons, 2010

**ADDITIONAL BIBLIOGRAPHY**

- Hewitt G F Process Heat Transfer, CRC Press, 1994
- Lienhard JH IV, Lienhard JH V A heat transfer text book, Phlogiston, 2008

**BASIC ELECTRONIC RESOURCES**

- Lienhard JH V, Lienhard JH IV . A heat transfer text book: <http://web.mit.edu/lienhard/www/ahtt.html>

