

Academic Year: (2019 / 2020)

Review date: 05/05/2020 13:22:45

Department assigned to the subject: Thermal and Fluids Engineering Department

Coordinating teacher: HERNANDEZ JIMENEZ, FERNANDO

Type: Compulsory ECTS Credits : 4.0

Year : 1 Semester : 2

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

- Thermodynamics
- Heat Transfer

OBJECTIVES

Competences acquired by the students:

- Capability of analyzing the different processes occurring in a power station based on renewable energy.
- Capability of designing a power station based on renewable energy.
- Capability of evaluating the performance of a power station based on renewable energy.

Learning results acquired by the students:

The student should be capable of designing and evaluating the performance of different types of power stations based on renewable energies.

DESCRIPTION OF CONTENTS: PROGRAMME

- Fundamentals of thermodynamics.
- Brayton cycle.
- Rankine cycle.
- Combined cycle.
- Biomass.
- Solar energy.
- Geothermal energy.

LEARNING ACTIVITIES AND METHODOLOGY

- Lectures, where the concepts to be acquired by the student will be presented. The student will receive the notes of the lecture prior to the class. (1.5 ECTS)
- Problems solving by the students (0.75 ECTS)
- Problems lessons, where the problem solutions will be discussed. (0.75 ECTS)
- Laboratory lessons. (1 ECTS)

ASSESSMENT SYSTEM

% end-of-term-examination/test:	60
% of continuous assessment (assignments, laboratory, practicals...):	40

The assessment system includes the continuous evaluation of the students work (projects, laboratory reports, evaluation tests, problems proposed) and the evaluation via a final exam to evaluate the global knowledge and capabilities acquired by the students. The percentage of each part is variable, depending on the extension and difficulty of the different tasks, but the ranges are 40% to 80% for the continuous evaluation and 60% to 20% for the final exam.

BASIC BIBLIOGRAPHY

- José Antonio Carta González, Roque Calero Pérez, Antonio Colmenar Santos, Manuel-Alonso Castro Gil Centrales de energías renovables : generación eléctrica con energías renovables, Pearson, 2009

- M.J. Moran, H.N.Saphiro Fundamentals of Engineering Thermodynamics, John Wiley & Sons, 2006