

Academic Year: (2019 / 2020)

Review date: 03-05-2020

Department assigned to the subject: Electrical Engineering Department

Coordinating teacher: ALONSO MARTINEZ, MONICA

Type: Electives ECTS Credits : 6.0

Year : 1 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

The students should have previous knowledge of power systems engineering: circuit theory, electrical machines, load flow, short circuits and power system stability to follow this subjects.

Otherwise, they should course Electrical systems and equipment.

OBJECTIVES

- Acquire adequate knowledge of Electrical Engineering and areas that have application here.
- Ability to determine what technologies there are of electric vehicles and what their expected development.
- Ability to determine the requirements of distribution networks for the integration of electric vehicles and the interaction of these devices with the generation-demand balance.
- Acquisition of principles of energy efficiency, linked to electricity.
- Ability to determine the energy efficiency of different industrial and domestic installations.
- Ability to determine the most suitable measures to improve the energy efficiency of installations.
- Ability to select the most suitable renewable generation for a given installation.
- Acquisition of search complex information on standards and legislation, on issues related to renewable energies and energy efficiency.

DESCRIPTION OF CONTENTS: PROGRAMME

- Introduction to energy efficiency. Regulatory framework.
- Energy efficiency in transport. Regulatory framework.
 - * Electric vehicles, hydrogen and others. Description of the technology. Regulatory framework.
 - * Electric vehicles technologies. Batteries and charging modes. VE simulation.
 - * Electric vehicles on distribution networks and generation-demand balance.
- Efficiency energética in edificación. Regulatory framework.
 - * Energy efficiency in different technologies (lighting, air conditioning, etc.).
 - * Integration of renewable energies in consumer facilities.
 - * Improvements in energy efficiency.

LEARNING ACTIVITIES AND METHODOLOGY

- Theory sessions where the basic knowledge will be presented. Most of these sessions will be given by professionals with practical experience in efficiency business and electrical sector.
- Lab computer sessions.
- Oral group presentations.
- Visits to pilot instalations.

ASSESSMENT SYSTEM

Continuous evaluation: partial exam and homework 100%

Ordinary exam without continuous evaluation 100%

Extraordinary exam 100%

% end-of-term-examination:	0
% of continuous assessment (assignments, laboratory, practicals...):	10

BASIC BIBLIOGRAPHY

- IDAE Plan de energías renovables (PER) 2011-2020, IDAE, 2011
- IDAE Plan de Ahorro y Eficiencia Energética 2011-2020. 2º Plan de Acción Nacional de Eficiencia Energética de España, IDAE , 2011
- R. García Valle, J.A. Peças Lopes (Eds.) Electric Vehicle Integration into Modern Power Networks, Springer, 2013