Advanced Management of Smart Grids

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 : 3.0

Year : 4 Semester : 2

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Transmission and distribution of energy

OBJECTIVES

The aim of this multidisciplinary course is to focus in the advanced operation of smart grids emphasizing the management of electricity networks through the application of Information and Communication Technologies (ICT) .

To achieve this goal , students must acquire a body of knowledge , and capabilities.
-knowledge about smart grids , its application and development in the electricity networks of the future.
-knowledge about the mechanisms of energy storage management and integration of renewable energies.
-knowledge about automation and measurement technologies used in Smart Grids .
-knowledge about energy data management commonly used in smart grids .

DESCRIPTION OF CONTENTS: PROGRAMME

1. New technological developments in smart grids .
2. Energy storage management and integration of renewable energies.
3. Management of electric mobility in smart grids .
4. Automatization Architectures for Smart Grid
5. Smart grids projects (National and International), Regulation and practical examples

LEARNING ACTIVITIES AND METHODOLOGY

The training activities include:
- master-classes, classes resolution of questions in small groups, individual tutorials and personal work, including research, tests and examinations; aimed at the acquisition of theoretical knowledge.
- exercices in small groups, individual tutorials and exercises by the student-oriented acquisition of practical skills related to the program for each subject.
- Lab sessions with power networks commercial software (PSS/E).
- Visit to facilities.

ASSESSMENT SYSTEM

The evaluation system includes continuous assessment (100 %) of student work (papers, reports of laboratory tests and evaluation of skills and theoretical knowledge and practical) .

% end-of-term-examination:	0
% of continuous assessment (assigments, laboratory, practicals…):	100

BASIC BIBLIOGRAPHY

- Borlase, Stuart Smart grids: infrastructure, technology, and solutions, CRC Press, 2012
- David Elliott Energy Storage Systems, IOP Publishing Ltd, 2017