

30023 - Electrical Power Systems

Información del Plan Docente

Academic Year	2016/17
Academic center	110 - Escuela de Ingeniería y Arquitectura
Degree	436 - Bachelor's Degree in Industrial Engineering Technology
ECTS	6.0
Course	3
Period	First semester
Subject Type	Compulsory
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

The course takes place in various aspects, mainly through classroom sessions (sessions/classes of theory-problems) and practical sessions of laboratory; it can also include other activities.

5.2.Learning activities

The classroom sessions contain fundamental concepts that are applied to practical exercises, which help to understand those concepts. Primarily the methodology consists of lectures.

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The practical sessions contain laboratory experiments, including computer practices, where the analyzed practical situations are often more complex than those studied in the classroom sessions . It also can allow to deal with a more extensive analysis.

Other evaluable activities can include written partial exams, problems to be solved, practical works or other activities.

5.3.Program

The contents of the classroom sessions are structured in the following sections:

- I.- Main components of electric power systems.
- II.- Electric power lines.
- III.- Electric parameters of lines.
- IV.- Steady-state analysis of electric lines.
- V.- Power flows in electric power systems.
- VI.- Faults in electric power systems. Transient stability.

The contents of practical sessions of laboratory, as well as other activities, will be related with the classroom sessions.

The practical sessions are structured in the following sections:

- A.- sessions to study electric power lines (two sessions).
- B.- session to study electric power systems in steady state (one session).
- C.- sessions to study electric power systems in transient states (two sessions).

5.4.Planning and scheduling

The course will be held in the weeks corresponding to the first semester of the academic year. During such semester, the activities will be distributed as follows:

- 3 hours per week of classroom sessions.

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- 5 practical sessions of laboratory within the set of weeks scheduled for this kind of sessions by the academic center. Each session will have an approximate extension of three hours.

5.5. Bibliography and recommended resources

- Ramírez, I.J., et. al., Problemas resueltos de Sistemas de Energía Eléctrica, Ed. Thomson.
- Glover, J.D., T. Overbye, and M.S. Sarma, Power System Analysis and Design, Ed. Cengage Learning.
- Grainger, J.J. and Jr. Stevenson, Power system analysis, Ed. McGraw-Hill
- Gómez-Exposito, A., et. al., Análisis y Operación de Sistemas de Energía Eléctrica, Ed. McGraw-Hill.