Universidad Zaragoza

Academic Year/course: 2024/25

60814 - Electric power systems

Syllabus Information

Academic year: 2024/25
Subject: 60814 - Electric power systems
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
Degree: 532 - Master's in Industrial Engineering
ECTS: 6.0
Year:
Semester: First semester
Subject type: Optional
Module:

1. General information

This subject aims to provide the student with training related to power electrical systems, specifically related to electrical lines and networks, emphasizing their operation in steady state and in transient regimes.

2. Learning results

Upon completion of the subject, the student will be able to:

1. Know and use the principles of circuit theory and electric machines (CE3).
2. Understand power electrical systems and their applications (CE7).

Learning results

1. Know how to use methods and techniques for calculating electrical lines.
2. Know the fundamentals about permanent and transient regimes of power electrical systems.
3. Be able to expand knowledge about electrical power systems and their applications in high and low voltage electrical installations.

3. Syllabus

The contents of the theory-problem sessions are structured into two thematic blocks:

1. Electric lines. Electrical parameters. Lines in permanent regime.
2. Electric networks in steady state and in transient regimes.

The contents of the practical laboratory sessions , as well as other activities, will be related to those of the theory-problem sessions.

4. Academic activities

The subject will be taught during the weeks corresponding to the first four month period of the academic year. During it, the activities will be distributed in the following manner:

1. Theory-problem sessions throughout all weeks, at a rate of three hours per week.
2. Laboratory practice sessions during the last weeks, within the set of weeks scheduled for practices by the Centre. Each session (with a total of five sessions) will have a planned duration of three hours.

The activities will be scheduled according to the academic calendar approved by the centre.

5. Assessment system

The student must demonstrate achievement of the intended learning results through the following assessment activities:

Continuous assessment

Two theoretical-practical tests (70% of the grade). They will consist of two assessable written tests. Different content from the subject will be evaluated in each of the two tests.

Laboratory practices. The practices will be carried out throughout the corresponding four month period. It is mandatory to correctly complete all practices and to submit the result sheets for each of them, in order to pass the subject.

Other assessable activities (30% of the grade). The student must solve several practical exercises related to the subject's content.

To pass the continuous assessment, it is necessary to have completed all the practices, as well as to obtain a minimum grade of 4 points out of 10 in both the two theoretical-practical tests and the assessable activities.

Those students who do not choose continuous assessment, who do not pass the subject by this method, or who would like to improve their grade (in this case the best of the grades obtained will prevail), must take a comprehensive exam on the dates designated by the Centre.

Global assessment:

Theory exam and problems (80% of the final grade). It will consist of a graded written test, to be taken during the centre's examination period.

Practical exam (20% of the final grade). There will be an exam in the laboratory related to the practices.

In order to pass the subject, it is necessary to obtain a minimum grade of 4 out of 10 in each of these two global assessment tests.

On the other hand, the second call for exams will be carried out through a comprehensive test conducted in the period established for this purpose in the academic calendar.

6. Sustainable Development Goals

7 - Affordable and Clean Energy
9 - Industry, Innovation and Infrastructure