

29623 - Electrical Machines II

Syllabus Information

Academic Year: 2019/20

Subject: 29623 - Electrical Machines II

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 430 - Bachelor's Degree in Electrical Engineering

ECTS: 6.0

Year: 3

Semester: First semester

Subject Type: Compulsory

Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The purpose of the Electric Machines II course is to study synchronous machines as most electric generators are of this kind, as well as DC machines because their use and their regulation are very important in the industry and other special motors used now as brushless, reluctance or linear motors.

4.2.Learning tasks

An important part of the basic content is taught in class in a traditional way. They are three hours of lectures per week, and during the lectures, the basic knowledge is delivered to the students.

Problems and case studies will be developed in the classroom, that contribute extensively to guiding the learning process of the students.

Problems and case studies will be proposed to the students, as an important way of learning. The tutorial sessions are used for clarifications and understanding difficult concepts.

Students will experience the operation of the electric machines in the laboratory. A guideline for each practice lab has been created. These guidelines are available in the ADD.

There are also two quizzes and a three-hour final exam.

4.3.Syllabus

The course will address the following topics:

Synchronous Machines:

Synchronous machine models. Active and reactive power. P-Q capability diagram. Performance as a motor. Transient analysis.

Direct Current Machines:

Armature winding. Load operation. Performance of DC generators. Performance of DC motors.

Other electrical machines in the industry

Electrical traction, stepper, reluctance, brushless, lineal motors.

4.4.Course planning and calendar

4.5.Bibliography and recommended resources

<http://psfunizar7.unizar.es/br13/egAsignaturas.php?id=7779&p=1>