

## 66340 - Electric generators for renewable energy applications

### Información del Plan Docente

Academic Year	2016/17
Academic center	110 - Escuela de Ingeniería y Arquitectura
Degree	535 - Master's in Renewable Energies and Energy Efficiency
ECTS	5.0
Course	1
Period	Second semester
Subject Type	Optional
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 learning process that is designed for this subject is based on the following:

In the theory sessions, fundamental concepts and problems are explained on the board .

In the practical sessions, simulations of different generation systems are simulated , and the students can check the operation of these systems in different conditions and understand better the concepts studied .

In other tasks, the student can deepen the topics explained in theory and practice sessions .

#### 5.2. Learning activities

## 66340 - Electric generators for renewable energy applications

The program includes the following activities:

### Theoretical and practical classes

There are sessions to explain the basic concept and to make problems and cases of practical applications of such content. Student participation through questions and brief discussions will be encouraged.

### Lab practices.

Student will have a script practice at the beginning of the practice session, which will be accompanied with explanations and instructions necessary for the completion of the practice.

### Tutored projects.

During the first weeks of the course, the subject teacher raise students solving a set of problems and cases or conducting course work, which are applied in a practical way the contents of the developed subject in different course topics.

### individual study.

Spread along the length of the course. the ongoing work of the student will be promoted by the evenly distributed throughout the semester of the various learning activities.

### Assessment tests.

Assessment tests besides having a qualifying function, also a learning tool with which the student checks the degree of understanding and assimilation of knowledge and skills achieved.

### Tutorial.

direct student care, identification of learning problems, orientation in the subject, attention to exercises and assignments  
...

## 5.3.Program

1. Introduction
2. Electrical transformations
3. Advanced Modeling of electrical machines
3. Generator control
4. Applications .
5. Design with fem.

## 5.4.Planning and scheduling

Schedule sessions and presentation of works

The schedule of sessions and presentation of papers will be communicated in the initial class and published on the website of the course .

## 5.5.Bibliography and recommended resources

- Peter Vas. "Vector Control of AC Machines". Oxford Science Publications
- Bolea. "Variable speed generators" CRC Press.
-

## **66340 - Electric generators for renewable energy applications**

C.M. Ong. "Dynamic simulation of electric machinery", Prentice Hall Ptr.

- Jesús Fraile Mora. "Máquinas eléctricas", 6ª edición. Ed. McGraw-Hill/Interamericana, Madrid,