

Academic Year: ( 2019 / 2020 )

Review date: 23-03-2018

Department assigned to the subject: Electrical Engineering Department

Coordinating teacher: BURGOS DIAZ, JUAN CARLOS

Type: Electives ECTS Credits : 6.0

Year : 4 Semester : 2

**REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)**

Principles of Power Conversion  
Rotative Electrical Machine

**OBJECTIVES**

- Know the speed control schemes of electric motors
- Know the different elements that make up an electrical drive: the electrical motor, the power electronic converter, the control system and the mechanical load and how they interact.
- Being able to control an electric drive and simulate their dynamic response.

**DESCRIPTION OF CONTENTS: PROGRAMME**

- 1-General scheme of an electrical drive. Mechanical equation of motion.
- 2-Static power converters for DC drives.
- 2-Control of DC drives.
- 4-Static power converters for AC drives.
- 5-Scalar control of induction machines. Selection of electrical drives.
- 6-Vector control of power converters.
- 7-Vector control of induction motors.

**LEARNING ACTIVITIES AND METHODOLOGY**

The classes will be based on comprehensive reading of texts related to any of the topics of the course, prior to the class, where such topic will be discussed. The attitude in the discussions, participation, understanding of texts, etc.. will also be evaluated.

In addition, in the computer room the students will practice modeling and control of control schemes of electrical drives.

**ASSESSMENT SYSTEM**

- 1.- For those students attending all the classes a continuous evaluation will be done. There will be a short examination once a week (80%).
- 2.- For those students who can't attend all the classes there will be an exam (80%).
- 3.- Labs (15%). Eventually, there will be an exam of the practical content learned in the labs.
- 4 - The attitude and participation in the classes (5%).

<b>% end-of-term-examination:</b>	0
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	100

**BASIC BIBLIOGRAPHY**

- N. Mohan Power Electronic: converter, application and design, John Wiley & Sons.
- W. Leonhard Control of Electrical Drives, Springer.