

220254 - Advanced Instrumentation

Coordinating unit: 205 - ESEIAAT - Terrassa School of Industrial, Aerospace and Audiovisual Engineering
 Teaching unit: 710 - EEL - Department of Electronic Engineering
 Academic year: 2019
 Degree: MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2013). (Teaching unit Optional)
 ECTS credits: 2,5 Teaching languages: Spanish

Teaching staff

Coordinator: JAVIER GAGO BARRIO

Degree competences to which the subject contributes

Specific:

1. Capability for modeling, analysis, calculation and design of electrical power systems.
2. Ability to calculate and design electrical machines and actuators, with knowledge of efficient electrical systems and efficient control of electrical drives.
3. Ability to project conventional and non-conventionals power facilities.
4. Knowledge to data integration and industrial communications.
5. Knowledge to the management and monitoring of automated information processes energy.
6. Ability to model and solve problems associated with the operation of electric power systems by integrating information technologies and communication: protection, network operation, and electricity market stability.

Learning objectives of the subject

Design, analysis , installation and commissioning of equipment and advanced instrumentation systems

Study load

Total learning time: 62h 30m	Hours large group:	15h	24.00%
	Hours small group:	7h 30m	12.00%
	Self study:	40h	64.00%

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Content

Automatic power measurement	Learning time: 62h 30m Theory classes: 15h Laboratory classes: 7h 30m Self study : 40h
Description: 1- Design of a conditioner for measuring electrical power 2- Adquisició with ARDUINO 3- Wireless data transmission 4- LABVIEW acquisition and processing program 5- PLC communication	

Qualification system

Exam 25%
 Laboratory 50%
 Project 25%

For those students who meet the requirements and submit to the reevaluation examination, the grade of the reevaluation exam will replace the grades of all the on-site written evaluation acts (tests, midterm and final exams) and the grades obtained during the course for lab practices, works, projects and presentations will be kept. If the final grade after reevaluation is lower than 5.0, it will replace the initial one only if it is higher. If the final grade after reevaluation is greater or equal to 5.0, the final grade of the subject will be pass 5.0.

Bibliography

Basic:

Pérez García, M.A. [et al.]. Instrumentación electrónica. 2ª ed. Madrid: Thomson, 2004. ISBN 8497321669.

Complementary:

Tomasi, Wayne. Sistemas de comunicaciones electrónicas. 4ª ed. México: Pearson Educación, 2003. ISBN 9702603161.

Others resources:

Hyperlink

<http://www.ni.com/labview/esa/>