



Course guides

220253 - 220253 - Design of Electric Systems with Renewable Energy

Last modified: 29/05/2020

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 709 - DEE - Department of Electrical Engineering.

Degree: MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2013). (Optional subject).

Academic year: 2020 **ECTS Credits:** 5.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: SANTIAGO BOGARRA RODRIGUEZ

Others: ANTONIO GARCIA ESPINOSA - JORDI ROGER RIBA RUIZ

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.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

STUDY LOAD

| Type | Hours | Percentage |
|-------------------|-------|------------|
| Hours small group | 15,0 | 12.00 |
| Hours large group | 30,0 | 24.00 |
| Self study | 80,0 | 64.00 |

Total learning time: 125 h



CONTENTS

(ENG) Projecte de sistemes elèctrics amb energia eòlica

Full-or-part-time: 63h
Theory classes: 16h
Laboratory classes: 7h
Self study : 40h

(ENG) Projecte de sistemes elèctrics amb energia fotovoltaica

Full-or-part-time: 62h
Theory classes: 14h
Laboratory classes: 8h
Self study : 40h

ACTIVITIES

(ENG) PROJECTES

Full-or-part-time: 70h
Theory classes: 15h
Laboratory classes: 15h
Self study: 40h

(ENG) EXAMEN PARCIAL

Full-or-part-time: 28h
Theory classes: 8h
Self study: 20h

(ENG) EXAMEN FINAL

Full-or-part-time: 27h
Theory classes: 7h
Self study: 20h

GRADING SYSTEM



BIBLIOGRAPHY

Basic:

- Rodríguez Amenedo, J. L; Burgos Díaz, J. C; Arnalte Gómez, S. Sistemas eólicos de producción de energía eléctrica. Alcorcón: Rueda, DL 2003. ISBN 9788472071391.
- Villarrubia López, Miguel. Energía eólica. Barcelona: CEAC, cop. 2004. ISBN 9788432910623.
- Villarrubia López, Miguel. Ingeniería de la energía eólica. Barcelona: Marcombo, 2012. ISBN 9788426715807.
- Zabalza Bribián, I. [et al.]. El ahorro energético en el nuevo código técnico de la edificación. Madrid: Fundación Confemetal, DL 2007. ISBN 9788496743304.
- Tobajas Vázquez, M. Carlos. Energía solar fotovoltaica. 2ª ed. Barcelona: Ceysa, 2005. ISBN 8486108624.
- Martínez Jiménez, Amador; Toledano, José Carlos. Dimensionado de instalaciones solares fotovoltaicas. Madrid: Paraninfo, cop. 2012. ISBN 8428332983.
- Castañer Muñoz, Luis; Silvestre Berges, Santiago. Modelling photovoltaic systems: using PSpice. Chichester: John Wiley & Sons, cop. 2002. ISBN 9780470845271.