

330107 - EP - Power Electronics

Coordinating unit: 330 - EPSEM - Manresa School of Engineering
 Teaching unit: 750 - EMIT - Department of Mining, Industrial and ICT Engineering
 Academic year: 2019
 Degree: BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2016). (Teaching unit Compulsory)
 BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
 ECTS credits: 6 Teaching languages: Catalan

Teaching staff

Coordinator: INMACULADA MARTINEZ TEIXIDOR

Degree competences to which the subject contributes

Specific:

1. (ENG) Coneixement aplicat d'electrònica de potència.
2. (ENG) Capacitat per a dissenyar sistemes electrònics de potència.
3. (ENG) Coneixement per desenvolupar el modelat i simulació de sistemes.

Transversal:

4. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.
5. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.
6. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.

Learning objectives of the subject

Study load

Total learning time: 150h	Hours large group:	45h	30.00%
	Hours medium group:	0h	0.00%
	Hours small group:	15h	10.00%
	Guided activities:	0h	0.00%
	Self study:	90h	60.00%

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Content

(ENG) Títol contingut 1: FONAMENTS DE L'ELECTRÒNICA DE POTÈNCIA	Learning time: 60h Theory classes: 18h Laboratory classes: 6h Self study : 36h
(ENG) Títol contingut 2: ESTRUCTURES DELS CONVERTIDORS ESTÀTICS	Learning time: 67h Theory classes: 20h Laboratory classes: 7h Self study : 40h
(ENG) Títol contingut 3: EL CONVERTIDOR ESTÀTIC EN LLAÇ TANCAT	Learning time: 23h Theory classes: 7h Laboratory classes: 2h Self study : 14h

Planning of activities

(ENG) TÍTOL DE L'ACTIVITAT 1: SESSIÓ EXPLICATIVA	Hours: 1h Laboratory classes: 1h
(ENG) TÍTOL DE L'ACTIVITAT 2: PRÀCTIQUES DE LABORATORI D'ELECTRÒNICA INDUSTRIAL I DE POTÈNCIA	Hours: 49h Laboratory classes: 14h Self study: 35h
(ENG) TÍTOL DE L'ACTIVITAT 3: PROVA ESCRITA	Hours: 16h Theory classes: 2h Self study: 14h
(ENG) TÍTOL DE L'ACTIVITAT 4: PROVA ESCRITA	Hours: 16h Theory classes: 2h Self study: 14h

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Bibliography

Basic:

Ballester, Eduard; Piqué, Robert. *Electrónica de potencia: principios fundamentales y estructuras básicas*. Barcelona: Marcombo, 2011. ISBN 9788426716699.

Complementary:

Rashid, M. H. *Electrónica de potencia: circuitos, dispositivos y aplicaciones*. 3^a ed. México: Prentice Hall Hispanoamericana, 2004. ISBN 9702605326.

Hart, Daniel W. *Electrónica de potencia*. Madrid: Prentice Hall, 2001. ISBN 8420531790.

Mohan, Ned; Undeland, Tore M.; Robbins, William P. *Power electronics: converters, applications and design*. 3rd ed. New York: John Wiley and Sons, 2003. ISBN 0471226939.

Others resources: