

330106 - RA - Automatic Regulation

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: MARIA ROSA ARGELAGUET ISANTA

Degree competences to which the subject contributes

Specific:

1. (ENG) Coneixement dels mètodes freqüencials que faciliten l'estudi i disseny de sistemes tant continus com discrets.
2. (ENG) Coneixement de les tècniques d'espai d'estat per modelar sistemes i complexes.
3. (ENG) Modelar i simular sistemes discrets.
4. (ENG) Coneixement aplicat dels sistemes discrets.
5. (ENG) Sintetitzar i resoldre problemes.

Transversal:

6. 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.
7. EFFECTIVE USE OF INFORMATION RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.
8. 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

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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%

Content

(ENG) Títol contingut 1: ANÀLISI DE LA RESPOSTA FREQUÈNCIAL DELS SISTEMES	Learning time: 35h Theory classes: 12h Laboratory classes: 3h Self study : 20h
(ENG) Títol contingut 2: ANÀLISI DELS SISTEMES DE CONTROL FENT SERVIR LES TÈCNIQUES DE L'ESPAI D'ESTAT	Learning time: 33h Theory classes: 10h Laboratory classes: 3h Self study : 20h
(ENG) Títol contingut 3: SISTEMES DE CONTROL EN TEMPS DISCRET. CONTROL DIGITAL.	Learning time: 33h Theory classes: 10h Laboratory classes: 3h Self study : 20h
(ENG) Títol contingut 4: DISSENY DE REGULADORS DIGITALS	Learning time: 49h Theory classes: 13h Laboratory classes: 6h Self study : 30h

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Planning of activities

(ENG) TÍTOL DE L'ACTIVITAT 1: SESSIÓ EXPLICATIVA	Hours: 2h Laboratory classes: 2h
(ENG) TÍTOL DE L'ACTIVITAT 2: CLASSE DE PROBLEMES	Hours: 33h Laboratory classes: 13h Self study: 20h
(ENG) TÍTOL DE L'ACTIVITAT 3: PROVA ESCRITA	Hours: 46h Theory classes: 6h Self study: 40h
(ENG) TÍTOL DE L'ACTIVITAT 4: REALITZACIÓ D'EXERCICIS	Hours: 30h Self study: 30h

Bibliography

Basic:

Nise, Norman S. Control systems engineering. 6th ed. Hoboken: John Wiley & Sons, 2011. ISBN 9780470646120.

Ogata, K. Ingeniería de control moderna [on line]. 5ª ed. Madrid: Pearson Educación, 2010 [Consultation: 18/06/2019]. Available on: <https://discovery.upc.edu/iii/encore/record/C__Rb1510172?lang=cat>. ISBN 9788483226605.

Complementary:

Bolzern, Paolo; Scattolini, Riccardo; Schiavoni, Nicola. Fundamentos de control automático. 3ª ed. Madrid: McGraw-Hill, 2008. ISBN 9788838664342.