

330521 - SEL - Electronic Systems

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 AUTOMOTIVE ENGINEERING (Syllabus 2017). (Teaching unit Compulsory)
ECTS credits:	6
Teaching languages:	Catalan, Spanish, English

Teaching staff

Coordinator:	Barcons Xixons, Victor
Others:	Pala Schonwalder, Pere

Degree competences to which the subject contributes

Basic:

- CB3. That students have the ability to gather and interpret relevant data (usually within their area of study) to make judgments that include a reflection on relevant social, scientific or ethical issues.
- CB4. Students can transmit information, ideas, problems and solutions to a specialized and non-specialized audience.

Specific:

- CE10. Knowledge of the fundamentals and applications of analog electronics, digital, microprocessors and power electronics.

Generical:

- CG1. Ability to write and develop projects in the field of automotive engineering for the construction, renovation, repair, maintenance, recycling, manufacture, installation, assembly or operation of: structures, mechanical equipment, energy installations, electrical and electronic installations, plants and industrial plants and manufacturing and automation processes.
- CG2. Capacity for management of the activities that are the subject of the engineering projects described in the previous section.
- CG3. Knowledge in basic and technological subjects that will enable them to learn new methods and theories and give them the versatility to adapt to new situations.
- CG4. Ability to solve problems with initiative, decision-making, creativity, critical reasoning and to communicate and transmit knowledge, skills and skills in the field of automotive engineering.
- CG10. Ability to work in a multilingual and multidisciplinary environment.

Transversal:

1. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 2. Using strategies for preparing and giving oral presentations. Writing texts and documents whose content is coherent, well structured and free of spelling and grammatical errors.
2. TEAMWORK - Level 2. Contributing to the consolidation of a team by planning targets and working efficiently to favor communication, task assignment and cohesion.
3. EFFECTIVE USE OF INFORMATION RESOURCES - Level 2. Designing and executing a good strategy for advanced searches using specialized information resources, once the various parts of an academic document have been identified and bibliographical references provided. Choosing suitable information based on its relevance and quality.
4. SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.
5. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.

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Learning objectives of the subject

Study load

Total learning time: 150h	Hours large group:	30h	20.00%
	Hours medium group:	0h	0.00%
	Hours small group:	30h	20.00%
	Guided activities:	0h	0.00%
	Self study:	90h	60.00%

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Content

title english	Learning time: 26h Theory classes: 8h Laboratory classes: 2h Self study : 16h
Description: content english	
title english	Learning time: 34h Theory classes: 10h Laboratory classes: 4h Self study : 20h
Description: content english	
title english	Learning time: 51h Theory classes: 15h Laboratory classes: 6h Self study : 30h
Description: content english	
title english	Learning time: 39h Theory classes: 12h Laboratory classes: 3h Self study : 24h
Description: content english	

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Planning of activities

name english	Hours: 45h Laboratory classes: 15h Self study: 30h
name english	Hours: 22h Theory classes: 2h Self study: 20h
name english	Hours: 22h Theory classes: 2h Self study: 20h
name english	Hours: 20h Self study: 20h

Bibliography

Basic:

Denton, Tom. Automobile electrical and electronic systems [on line]. 5th ed. Milton Park, Abingdon, Oxon: Routledge, 2017 [Consultation: 31/08/2018]. Available on: <https://discovery.upc.edu/iii/encore/record/C__Rb1480808?lang=cat>. ISBN 9781315856629.

Denton, Tom. Electric and hybrid vehicles. Milton Park, Abingdon, Oxon: Routledge, 2016. ISBN 9781315731612.

Complementary:

Bosch automotive electrics and automotive electronics: systems and components, networking and hybrid drive [on line]. Wiesbaden: Springer Fachmedien Wiesbaden, 2014 [Consultation: 27/07/2018]. Available on: <<http://dx.doi.org/10.1007/978-3-658-01784-2>>. ISBN 9783658017842.

Emadi, Ali. Advanced electric drive vehicles. Boca Raton: CRC Press, 2015. ISBN 9781466597693.

Others resources: