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330529 - MTER - Thermal Motors

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

Teaching staff

Coordinator: Vives Costa, Jordi

Others: Felipe Blanch, Jose Juan De

Degree competences to which the subject contributes

Basic:

CB1. The students have demonstrated to possess and to understand knowledge in an area of study that starts from the base of the general secondary education, and is usually found to a level that, although it relies on advanced textbooks, also includes some aspects that involve knowledge from the vanguard of their field of study.
CB2. Students can apply their knowledge to their work or vocation in a professional way and possess the skills that are usually demonstrated through the elaboration and defense of arguments and problem solving within their area of study.
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.

Specific:

CE2. Understanding and mastering the basic concepts of the general laws of mechanics, thermodynamics, fields and waves and electromagnetism and their application for solving engineering problems.
CE7. Knowledge of the basic principles of fluid mechanics and its application to problem solving in the field of engineering. Ability to design and interpret fluid dynamics systems.
CE16. Applied knowledge of industrial computing and communications in the automotive sector.

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.
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.
CG6. Ability to handle specifications, regulations and mandatory standards, as well as the specific legislation applicable to this area.
CG7. Ability to analyze and assess the social and environmental impact of technical solutions.

Transversal:

1. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 3. Taking social, economic and environmental factors into account in the application of solutions. Undertaking projects that tie in with human development and sustainability.
2. 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.
3. 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.

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4. 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:	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: 15h Theory classes: 6h Self study : 9h

Description:
content english

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Description:
content english

title english	Learning time: 15h Theory classes: 6h Self study : 9h

Description:
content english

title english	Learning time: 10h Theory classes: 4h Self study : 6h

Description:
content english

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Planning of activities

name english	Hours: 15h Laboratory classes: 6h Self study: 9h
name english	Hours: 15h Laboratory classes: 6h Self study: 9h
name english	Hours: 15h Laboratory classes: 6h Self study: 9h
name english	Hours: 15h Laboratory classes: 6h Self study: 9h
name english	Hours: 5h Laboratory classes: 2h Self study: 3h
name english	Hours: 13h Laboratory classes: 4h Self study: 9h
name english	Hours: 1h Theory classes: 1h
name english	Hours: 1h Theory classes: 1h

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Bibliography

Basic:

Moran, Michael J; Shapiro, Howard N. Fundamentos de termodinámica técnica. 2ª ed. Barcelona: Reverté, cop. 2004. ISBN 8429143130.

Agüera Soriano, José. Termodinámica lógica y motores térmicos. 6ª ed. mejorada. Madrid: Ciencia 3, DL 1999. ISBN 8486204984.

Carreras Planells, Ramón; ; Calvo Larruy, Antonio. Motores de combustión interna : fundamentos. Barcelona: Edicions UPC, 1993. ISBN 8476533543.

Complementary:

Payri González, Francisco; Desantes Fernández, José María. Motores de combustión interna alternativos. Valencia : Barcelona: Editorial UPV ; Reverté, cop. 2011. ISBN 9788429148022.

Others resources: