

330528 - CEV - Structural Calculations of the Vehicle

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: Dra. Maria Niubó Eslava i Dr. J.J. de Felipe Blanch
Others: Prof. Prepedigno Martín Villanueva

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:

- CE26. Basic knowledge and application of environmental technologies and sustainability (Specific competence of the mention of Industrial Technologies).

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.
- CG7. Ability to analyze and assess the social and environmental impact of technical solutions.

Transversal:

1. 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.
2. 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

ENG

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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

<p>1. Estructura dels vehicles: bastidors, xassís i carrosseria (ENG)</p>	<p>Learning time: 10h Theory classes: 2h Laboratory classes: 2h Self study : 6h</p>
<p>Description: ENG</p>	
<p>2. Introducció a l'anàlisi estructural (ENG)</p>	<p>Learning time: 20h Theory classes: 4h Laboratory classes: 4h Self study : 12h</p>
<p>Description: ENG</p>	
<p>3. Principi de Treball Virtual (ENG)</p>	<p>Learning time: 30h Theory classes: 6h Laboratory classes: 6h Self study : 18h</p>
<p>Description: ENG Specific objectives: ENG</p>	
<p>4. Mètode de la Flexibilitat (ENG)</p>	<p>Learning time: 30h Theory classes: 6h Laboratory classes: 6h Self study : 18h</p>
<p>Description: ENG</p>	



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5. Mètode de la Rigidesa (ENG)	Learning time: 30h Theory classes: 6h Laboratory classes: 6h Self study : 18h
Description: ENG	
6. Unions (ENG)	Learning time: 30h Theory classes: 6h Laboratory classes: 6h Self study : 18h
Description: ENG	

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Planning of activities

1. Tipologies de bastidors, xassís i carrosseria (ENG)	Hours: 16h Theory classes: 1h Self study: 15h
2. Tensions i esforços en una estructura (ENG)	Hours: 16h Theory classes: 1h Self study: 15h
3. Principi de treball virtual (ENG)	Hours: 16h Theory classes: 1h Self study: 15h
4. Mètode de la flexibilitat (ENG)	Hours: 16h Theory classes: 1h Self study: 15h
5. Mètode de la rigidesa (ENG)	Hours: 16h Theory classes: 1h Self study: 15h
6. Examen (ENG)	Hours: 16h Theory classes: 1h Self study: 15h

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Bibliography

Basic:

Ros Felip, Antonio; Casteleiro Villalba, José Manuel. Plasticidad : mecánica del sólido deformable. Madrid: Ibergarceta Publicaciones, S.L, 2019. ISBN 9788416228874.

Beer, Ferdinand Pierre; Johnston, E. Russell; DeWolf, John T; Mazurek, David F; Dorador, Jesús Manuel. Mecánica de materiales. Séptima edición. México: McGraw-Hill Education, 2017. ISBN 9781456260866.

Martín Navarro, José. Elementos fijos: carrocería. 5ª ed. Madrid: Paraninfo, 2010. ISBN 9788497327688.

Complementary:

Font Mezquita, José. Tratado sobre automóviles. Valencia: Universidad Politécnica de Valencia, 2004. ISBN 9788477215011.

Others resources:

ENG. En el campus digital "ATENEA"