Last update: 03-07-2019

330519 - EFVFE - Finite Elements and Finite Volumes for Engineering

Coordinating unit: 330 - EPSEM - Manresa School of Engineering
Teaching unit: 749 - MAT - Department of Mathematics
Academic year: 2019
Degree: BACHELOR'S DEGREE IN AUTOMOTIVE ENGINEERING (Syllabus 2017). (Teaching unit Compulsory)
ECTS credits: 4,5 Teaching languages: English

Teaching staff

Coordinator: Cors Iglesias, Josep M.

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.

Specific:

CE1. Ability to solve mathematical problems that may arise in engineering. Ability to apply knowledge about: linear algebra; geometry; differential geometry; differential and integral calculus; differential equations and partial derivatives; numerical methods; numerical algorithms; statistics and optimization.

Generical:

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.

Transversal:

1. 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.

2. 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.

3. 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.

Learning objectives of the subject

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Study load

Total learning time: 112h 30m	Hours large group:	22h 30m	20.00%
	Hours medium group:	0h	0.00%
	Hours small group:	22h 30m	20.00%
	Guided activities:	0h	0.00%
	Self study:	67h 30m	60.00%

Content

title english	Learning time: 37h 30m Theory classes: 7h 30m Laboratory classes: 7h 30m Self study : 22h 30m
Description: content english	

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Planning of activities

name english	Hours: 39h Self study: 19h 30m Theory classes: 19h 30m
name english	Hours: 35h 30m Laboratory classes: 13h 30m Self study: 22h
name english	Hours: 20h Laboratory classes: 7h 30m Self study: 12h 30m
name english	Hours: 12h Theory classes: 3h Self study: 9h
name english	Hours: 6h Laboratory classes: 1h 30m Self study: 4h 30m

Bibliography

Basic:

Masdemont Soler, Josep. Curs d'elements finits amb aplicacions [on line]. Barcelona: Edicions UPC, 2002 [Consultation: 24/07/2018]. Available on: <http://hdl.handle.net/2099.3/36166>. ISBN 8483015951.

Complementary:

Bonet, Carles, i altres. Càlcul numèric [on line]. Barcelona: Edicions UPC, 1994 [Consultation: 24/07/2018]. Available on: <http://hdl.handle.net/2099.3/36356>. ISBN 8476533764.

Others resources: