

## 330518 - MF - Mechanics of Fluids

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: 4,5 Teaching languages: Catalan, Spanish, English

### Teaching staff

Coordinator: Felipe Blanch, Jose Juan De  
Others: Vives Costa, Jordi  
Cobo Molina, Raül

### 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.

#### Specific:

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.

#### Generic:

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.

#### 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. 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.
4. 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.
5. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 2. Applying sustainability criteria and professional codes of conduct in the design and assessment of technological solutions.

### Learning objectives of the subject

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### Study load

Total learning time: 112h 30m	Hours large group:	15h	13.33%
	Hours medium group:	0h	0.00%
	Hours small group:	30h	26.67%
	Guided activities:	0h	0.00%
	Self study:	67h 30m	60.00%

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### Content

title english	Learning time: 15h Theory classes: 2h Laboratory classes: 4h Self study : 9h
Description: content english	
title english	Learning time: 30h Theory classes: 4h Laboratory classes: 8h Self study : 18h
Description: content english	
title english	Learning time: 30h Theory classes: 4h Laboratory classes: 8h Self study : 18h
Description: content english	
title english	Learning time: 22h 30m Theory classes: 3h Laboratory classes: 6h Self study : 13h 30m
Description: content english	

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title english	Learning time: 15h Theory classes: 2h Laboratory classes: 4h Self study : 9h
Description: content english	

### Planning of activities

name english	Hours: 14h Theory classes: 1h Laboratory classes: 4h Self study: 9h
name english	Hours: 26h Theory classes: 2h Laboratory classes: 8h Self study: 16h
name english	Hours: 26h Theory classes: 2h Laboratory classes: 8h Self study: 16h
name english	Hours: 20h 30m Theory classes: 1h Laboratory classes: 6h Self study: 13h 30m
name english	Hours: 13h Laboratory classes: 4h Self study: 9h
name english	Hours: 2h Theory classes: 2h

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### Bibliography

#### Basic:

Currie, Iain G. Fundamental mechanics of fluids. 4th ed. Boca Raton: CRC Press, 2013. ISBN 9781439874608.

White, Frank M. Mecánica de fluidos [on line]. 6ª ed. Madrid: McGraw-Hill, 2008 [Consultation: 18/06/2019]. Available on: <[https://discovery.upc.edu/iii/encore/record/C\\_\\_Rb1510228?lang=cat](https://discovery.upc.edu/iii/encore/record/C__Rb1510228?lang=cat)>. ISBN 9788448166038.

Çengel, Yunus A; Cimbala, John M. Mecánica de fluidos: fundamentos y aplicaciones [on line]. Cuarta edición. México, DF: McGraw-Hill, 2018 Available on: <[https://discovery.upc.edu/iii/encore/record/C\\_\\_Rb1510226?lang=cat](https://discovery.upc.edu/iii/encore/record/C__Rb1510226?lang=cat)>. ISBN 9781456260941.

#### Complementary:

Fernández Oro, Jesús Manuel. Técnicas numéricas en ingeniería de fluidos: introducción a la dinámica de fluidos computacional (CFD) por el método de volúmenes finitos. Barcelona: Reverté, 2012. ISBN 9788429126020.

#### Others resources: