

330065 - TMF - Thermodynamics and Fluid Mechanics

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 CHEMICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2016). (Teaching unit Compulsory) BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2016). (Teaching unit Compulsory) BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2016). (Teaching unit Compulsory)
ECTS credits:	6
Teaching languages:	Catalan, Spanish

Teaching staff

Coordinator:	JOSE JUAN DE FELIPE BLANCH
Others:	RAUL COBO MOLINA

Degree competences to which the subject contributes

Specific:

1. (ENG) Comprensió i domini dels conceptes fonamentals sobre les lleis conservatives de la termodinàmica, sobre els mecanismes de transmissió de calor i la mecànica de fluids.

Transversal:

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. 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.
4. TEAMWORK - Level 2. Contributing to the consolidation of a team by planning targets and working efficiently to favor communication, task assignment and cohesion.

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%

Content

(ENG) 1. Propietats i processos de les substàncies pures, simples i compressibles.	Learning time: 40h Theory classes: 8h Practical classes: 8h Self study : 24h
(ENG) 2. Principis conservatius.	Learning time: 40h Theory classes: 8h Practical classes: 8h Self study : 24h
(ENG) 3. Mecanismes de transmissió de calor.	Learning time: 40h Theory classes: 8h Practical classes: 8h Self study : 24h

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Planning of activities

(ENG) 1. EXERCICIS RELACIONATS AMB LA TEORIA (ACTIVITATS: 1, 3, 6 I 8).	Hours: 60h Practical classes: 24h Self study: 36h
(ENG) 2. PROVA D'AVVALUACIÓ CONTINUA (ACTIVITATS: 2, 4, 7 I 9).	Hours: 5h Practical classes: 2h Self study: 3h
(ENG) 3. PROVA ESPECÍFICA PER VALORAR TREBALL EN GRUP (ACTIVITAT: 5).	Hours: 5h Practical classes: 2h Self study: 3h
(ENG) 4. PROVA D'AVVALUACIÓ FINAL (ACTIVITAT: 10).	Hours: 12h Practical classes: 2h Self study: 10h
(ENG) 5. PRUEBA DE EVALUACIÓN FINAL (ACTIVIDAD 10).	Hours: 12h Practical classes: 2h Self study: 10h

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Bibliography

Basic:

- Moran, M. J.; Shapiro, H. N. Fundamentos de termodinámica técnica. 2ª ed. Barcelona: Reverté, 2004. ISBN 8429143130.
- Shames, Irving Herman. Mecánica para ingenieros: dinámica. 4ª ed. Madrid: Prentice Hall Iberia, 1999. ISBN 8483220458.
- Shames, Irving Herman. Mecánica para ingenieros: estática. 4ª ed. Madrid: Prentice Hall Iberia, 1998. ISBN 848322044X.
- Çengel, Yunus A; Ghajar, Afshin J. Transferencia de calor y masa : fundamentos y aplicaciones. 4a ed. México [etc.]: McGraw-Hill, cop. 2011. ISBN 9786071505408.

Complementary:

- Rolle, Kurt C. Termodinámica. 6ª ed. Acapulco: Pearson Educación, 2006. ISBN 9702607574.
- Esplugas Vidal, Santiago; Chamarro Aguilera, María Esther. Fundamentos de transmisión de calor. Barcelona: Publicacions i Edicions de la Universitat de Barcelona, 2005. ISBN 8447529916.
- Mott, Robert L. Mecánica de fluidos. 6ª ed. Naucalpan de Juárez: Pearson Educación, 2006. ISBN 9702608058.

Others resources:

- Audiovisual material
- Presentacions al campus digital