Course guides
330065 - TMF - Thermodynamics and Fluid Mechanics

Last modified: 28/05/2020

Unit in charge: Manresa School of Engineering
Teaching unit: 750 - EMIT - Department of Mining, Industrial and ICT Engineering.

Degree: BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2016). (Compulsory subject).
BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2016). (Compulsory subject).
BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2016). (Compulsory subject).

Academic year: 2020 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: 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.

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

STUDY LOAD

Type	Hours	Percentage
Hours large group	30,0	20.00
Hours small group	30,0	20.00
Self study	90,0	60.00

Total learning time: 150 h

CONTENTS

(ENG) 3. Mecanismes de transmissió de calor.

Full-or-part-time: 40h
Theory classes: 8h
Practical classes: 8h
Self study : 24h

(ENG) 1. Propietats i processos de les substàncies pures, simples i compressibles.

Full-or-part-time: 40h
Theory classes: 8h
Practical classes: 8h
Self study : 24h

(ENG) 2. Principis conservatius.

Full-or-part-time: 40h
Theory classes: 8h
Practical classes: 8h
Self study : 24h

ACTIVITIES

(ENG) 2. PROVA D'AVALUACIÓ CONTINUA (ACTIVITATS: 2, 4, 7 I 9).

Full-or-part-time: 5h
Practical classes: 2h
Self study: 3h

(ENG) 1. EXERCICIS RELACIONATS AMB LA TEORIA (ACTIVITATS: 1, 3, 6 I 8).

Full-or-part-time: 60h
Practical classes: 24h
Self study: 36h

(ENG) 3. PROVA ESPECÍFICA PER VALORAR TREBALL EN GRUP (ACTIVITAT: 5).

Full-or-part-time: 5h
Practical classes: 2h
Self study: 3h

(ENG) 4. PROVA D'AVALUACIÓ FINAL (ACTIVITAT: 10).

Full-or-part-time: 12h
Practical classes: 2h
Self study: 10h

(ENG) 5. PRUEBA DE EVALUACIÓN FINAL (ACTIVIDAD 10).

Full-or-part-time: 12h
Practical classes: 2h
Self study: 10h

GRADING SYSTEM

BIBLIOGRAPHY

Basic:
- Shames, Irving Herman. Mecánica para ingenieros: estática. 4ª ed. Madrid: Prentice Hall Iberia, 1998. ISBN 848322044X.
- Moran, M. J.; Shapiro, H. N. Fundamentos de termodinámica técnica [on line]. 2ª ed. Barcelona: Reverté, 2004 [Consultation: 30/07/2020]. Available on: http://www.ingebook.com/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=7704. ISBN 8429143130.
- Shames, Irving Herman. Mecánica para ingenieros: dinámica. 4ª ed. Madrid: Prentice Hall Iberia, 1999. ISBN 8483220458.
- 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.

RESOURCES

Audiovisual material:
- Presentacions al campus digial