

330052 - F1 - Physics I

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 ENERGY AND MINING RESOURCE ENGINEERING (Syllabus 2012). (Teaching unit Compulsory) BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2016). (Teaching unit Compulsory) BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2016). (Teaching unit Compulsory) BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2016). (Teaching unit Compulsory) BACHELOR'S DEGREE IN ELECTRICAL 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 MECHANICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
ECTS credits:	6
Teaching languages:	Catalan

Teaching staff

Coordinator:	LAURA CONANGLA TRIVIÑO
Others:	Ciriano Nogales, Yolanda Lladó Valero, Jordi Vallbe Mumbriu, Marc Vilanova Arnau, David Rota Font, Francesc

Degree competences to which the subject contributes

Specific:

1. (ENG) Comprensió i domini dels conceptes fonamentals sobre les lleis generals de la mecànica, termodinàmica, i la seva aplicació per a la resolució de problemes propis de l'enginyeria.

Transversal:

2. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 1. Planning oral communication, answering questions properly and writing straightforward texts that are spelt correctly and are grammatically coherent.
3. TEAMWORK - Level 1. Working in a team and making positive contributions once the aims and group and individual responsibilities have been defined. Reaching joint decisions on the strategy to be followed.
4. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.

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. MAGNITUDS I MESURES	Learning time: 17h Theory classes: 3h Laboratory classes: 4h Self study : 10h
(ENG) 2. MECÀNICA DE LA PARTÍCULA	Learning time: 38h Theory classes: 8h Laboratory classes: 7h Self study : 23h
(ENG) 3. MECÀNICA DEL SISTEMA DE PARTÍCULES	Learning time: 40h Theory classes: 8h Laboratory classes: 8h Self study : 24h
(ENG) 4. TERMODINÀMICA	Learning time: 55h Theory classes: 11h Laboratory classes: 11h Self study : 33h

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Planning of activities

(ENG) 1. TRACTAMENT DE DADES (CONTINGUT 1)	Hours: 8h Laboratory classes: 4h Self study: 4h
(ENG) 2. PRÀCTICA DE LABORATORI: MECÀNICA DE LA PARTÍCULA (CONTINGUT 2).	Hours: 5h Laboratory classes: 2h Self study: 3h
(ENG) 3. PRÀCTICA DE LABORATORI: MECÀNICA DEL SISTEMA DE PARTÍCULES (CONTINGUT 3).	Hours: 5h Laboratory classes: 2h Self study: 3h
(ENG) 4. PRÀCTICA DE LABORATORI: TERMODINÀMICA (CONTINGUT 4).	Hours: 10h Laboratory classes: 4h Self study: 6h
(ENG) 5. PROVA INDIVIDUAL D'AVUACIÓ CONTÍNUA (CONTINGUT 2).	Hours: 7h Theory classes: 2h Self study: 5h
(ENG) 6. PROVA INDIVIDUAL D'AVUACIÓ CONTÍNUA (CONTINGUT 3).	Hours: 7h Theory classes: 2h Self study: 5h
(ENG) 7. PROVA INDIVIDUAL D'AVUACIÓ CONTÍNUA (CONTINGUT 4).	Hours: 7h Theory classes: 2h Self study: 5h
(ENG) 8. LLIURABLES (CONTINGUT 2, 3 I 4).	Hours: 13h Laboratory classes: 3h Self study: 10h

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(ENG) 9. PROVA FINAL (CONTINGUT 2, 3 I 4).	Hours: 13h Theory classes: 3h Self study: 10h
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Bibliography

Basic:

Bauer, W.; Westfall, G. D. Física para ingeniería y ciencias. 2ª ed. México: McGraw-Hill/Interamericana, 2014. ISBN 9786071511911 (V. 1), 9786071511928 (V. 2).

Moran, M. J.; Shapiro, H. N. Fundamentos de termodinámica técnica. 2ª ed. Barcelona: Reverté, 2004. ISBN 8429143130.

Young, H. D.; Freedman, R. A. Física universitaria: Sears y Zemansky. 13ª ed. México: Pearson Education, 2013. ISBN 9786073221245 (V. 1), 9786073221900 (V. 2).

Serway, R. A.; Jewett, J. W. Física: para ciencias e ingeniería. 7ª ed. Madrid: Cengage Learning, 2008. ISBN 9789706868220 (V. 1), 9789706868374 (V. 2).

Tipler, P. A.; Mosca, G. Física per a la ciència i la tecnologia [on line]. Barcelona: Reverté, 2010 [Consultation: 18/06/2019]. Available on: <https://discovery.upc.edu/iii/encore/record/C___Rb1510154?lang=cat>. ISBN 9788429144314.

Walker, James S. Physics. 5th ed. Upper Saddle River: Pearson Prentice, 2017. ISBN 9780321976444.

Complementary:

Abad, L.; Iglesias, L. M. Problemas resueltos de física general. 2ª ed. Madrid: Bellisco, 2006. ISBN 8496486273.

Alcaraz, O.; López, J.; López, V. Física: problemas y ejercicios resueltos. Madrid: Pearson Educación, 2006. ISBN 8420544477.

Valiente, A. Física para ingenieros: 176 problemas útiles. Madrid: García-Maroto, 2012. ISBN 9788415475194.

Ferreres, E.; Mercadé, J.; Conangla, L. Pràctiques de física: graus EPSEM. Manresa: EPSEM, 2018.

Others resources: