Course guides
330052 - F1 - Physics I

Last modified: 05/05/2020

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 ENERGY AND MINING RESOURCE ENGINEERING (Syllabus 2012). (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

LECTURER

Coordinating lecturer: LAURA CONANGLA TRIVIÑO

Others: Ciriano Nogales, Yolanda
Lladó Valero, Jordi
Vallbe Mumbru, 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.

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) 1. MAGNITUDS I MESURES

Full-or-part-time: 17h
Theory classes: 3h
Laboratory classes: 4h
Self study : 10h

(ENG) 2. MECÀNICA DE LA PARTÍCULA

Full-or-part-time: 38h
Theory classes: 8h
Laboratory classes: 7h
Self study : 23h

(ENG) 3. MECÀNICA DEL SISTEMA DE PARTÍCULES

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

(ENG) 4. TERMODINÀMICA

Full-or-part-time: 55h
Theory classes: 11h
Laboratory classes: 11h
Self study : 33h

ACTIVITIES

(ENG) 1. TRACTAMENT DE DADES (CONTINGUT 1)

Full-or-part-time: 8h
Laboratory classes: 4h
Self study: 4h

(ENG) 2. PRÀCTICA DE LABORATORI: MECÀNICA DE LA PARTÍCULA (CONTINGUT 2).

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

(ENG) 3. PRÀCTICA DE LABORATORI: MECÀNICA DEL SISTEMA DE PARTÍCULES (CONTINGUT 3).

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

(ENG) 4. PRÀCTICA DE LABORATORI: TERMODINÀMICA (CONTINGUT 4).

Full-or-part-time: 10h
Laboratory classes: 4h
Self study: 6h

(ENG) 5. PROVA INDIVIDUAL D'AVALUACIÓ CONTÍNUA (CONTINGUT 2).

Full-or-part-time: 7h
Theory classes: 2h
Self study: 5h

(ENG) 6. PROVA INDIVIDUAL D'AVALUACIÓ CONTÍNUA (CONTINGUT 3).

Full-or-part-time: 7h
Theory classes: 2h
Self study: 5h

(ENG) 7. PROVA INDIVIDUAL D'AVALUACIÓ CONTÍNUA (CONTINGUT 4).

Full-or-part-time: 7h
Theory classes: 2h
Self study: 5h

(ENG) 8. LLIURABLES (CONTINGUT 2, 3 I 4).

Full-or-part-time: 13h
Laboratory classes: 3h
Self study: 10h

(ENG) 9. PROVA FINAL (CONTINGUT 2, 3 I 4).

Full-or-part-time: 13h
Theory classes: 3h
Self study: 10h

GRADING SYSTEM

BIBLIOGRAPHY

Basic:
- Bauer, W.; Westfall, G. D. Física para ingeniería y ciencias [on line]. 2ª ed. México: McGraw-Hill/Interamericana, 2014 [Consultation: 30/07/2020]. Available on: http://www.ingebook.com/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=5627. ISBN 9786071511911 (V. 1), 9786071511928 (V. 2).
- 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.
- Young, H. D.; Freedman, R. A. Física universitaria: Sears y Zemansky [on line]. 13ª ed. México: Pearson Education, 2013 [Consultation: 30/07/2020]. Available on: http://www.ingebook.com/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=4618. ISBN 9786073221245 (V. 1), 9786073221900 (V. 2).
- Walker, James S. Physics. 5th ed. Upper Saddle River: Pearson Prentice, 2017. ISBN 9780321976444.
- 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.
- Serway, R. A.; Jewett, J. W. Física: para ciencias e ingeniería. 7ª ed. Madrid: Cengage Learning, 2008. ISBN 9789706868220 (V. 1), 9789706868374 (V. 2).

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 [on line]. Madrid: Pearson Educación, 2006 [Consultation: 30/07/2020]. Available on: http://www.ingebook.com/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=1249. ISBN 8420544477.
- Ferreres, E.; Mercadé, J.; Conangla, L. Pràctiques de física: graus EPSEM. Manresa: EPSEM, 2018.
- Valiente, A. Física para ingenieros: 176 problemas útiles. Madrid: García-Maroto, 2012. ISBN 9788415475194.