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330063 - SM - Mechanical Systems

Coordinating unit: 330 - EPSEM - Manresa School of Engineering

Teaching unit: 712 - EM - Department of Mechanical Engineering

Academic year: 2019

Degree: BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2016). (Teaching unit Compulsory)
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 ICT SYSTEMS ENGINEERING (Syllabus 2010). (Teaching unit Optional)

ECTS credits: 6 Teaching languages: Catalan, Spanish

Teaching staff

Coordinator: ANAS AL OMAR MESNAOUI

Others: JOSE IGNACIO ALCELAY LARRION - FERRAN MARTINEZ CANO - JOSE ORTUÑO MARTIN - ESTEBAN PEÑA PITARCH

Degree competences to which the subject contributes

Specific:

1. (ENG) Capacidad para conocer, entender y utilizar los principios fundamentales que rigen el equilibrio mecánico de los cuerpos rígidos, así como los distintos métodos de cálculo. Comprender la problemática del análisis y diseño de sistemas mecánicos.

Transversal:

2. 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.
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.

Learning objectives of the subject

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Study load

Total learning time: 150h	Hours large group:	45h	30.00%
	Hours medium group:	0h	0.00%
	Hours small group:	15h	10.00%
	Guided activities:	0h	0.00%
	Self study:	90h	60.00%

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Content

(ENG) 1. Sistemas de Fuerzas	Learning time: 25h Theory classes: 8h Laboratory classes: 2h Self study : 15h
(ENG) 2. Equilibrio de Cuerpos Rígidos	Learning time: 23h Theory classes: 7h Laboratory classes: 2h Self study : 14h
(ENG) 3. Rozamiento	Learning time: 15h Theory classes: 4h Laboratory classes: 2h Self study : 9h
(ENG) 4. Cinemática del Cuerpo Rígido	Learning time: 30h Theory classes: 9h Laboratory classes: 3h Self study : 18h
(ENG) 5. Dinámica del Cuerpo Rígido	Learning time: 30h Theory classes: 9h Laboratory classes: 3h Self study : 18h
(ENG) 6. Mecanismos como Sistemas de Cuerpos Rígidos	Learning time: 27h Theory classes: 8h Laboratory classes: 3h Self study : 16h

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Planning of activities

(ENG) 1. SISTEMAS DE FUERZAS	Hours: 5h Laboratory classes: 2h Self study: 3h
(ENG) 2. EQUILIBRIO DE CUERPOS RÍGIDOS	Hours: 5h Laboratory classes: 2h Self study: 3h
(ENG) 3. ROZAMIENTO	Hours: 5h Laboratory classes: 2h Self study: 3h
(ENG) 4. PRÁCTICA DE LABORATORIO	Hours: 8h Laboratory classes: 3h Self study: 5h
(ENG) 5. PRÁCTICA DE LABORATORIO	Hours: 8h Laboratory classes: 3h Self study: 5h
(ENG) 6. PRÁCTICA DE LABORATORIO	Hours: 8h Laboratory classes: 3h Self study: 5h
(ENG) 7. PRIMERA PRUEBA INDIVIDUAL DE EVALUACIÓN CONTINUA	Hours: 12h Theory classes: 2h Self study: 10h
(ENG) 8. SEGUNDA PRUEBA INDIVIDUAL DE EVALUACIÓN CONTINUA	Hours: 12h Theory classes: 2h Self study: 10h

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(ENG) 9. PRUEBA FINAL	Hours: 18h Theory classes: 3h Self study: 15h

Bibliography

Basic:

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Meriam, J. L.; Kraige, L. G. Mecánica para ingenieros. Vol. 1, Estática. 3ª ed. Barcelona: Reverté, 1998. ISBN 8429142800.

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Uicker, John Joseph; Pennock, Gordon R; Shigley, Joseph E. Theory of machines and mechanisms. International 4th ed. New York: Oxford University Press, 2011. ISBN 9780199777815.

Complementary:

Bedford, A.; Fowler, W. T. Mecánica para ingeniería. Vol.1, Estática. 5ª ed. México: Pearson Educación, 2008. ISBN 9789702612155.

Bedford, A.; Fowler, W. T. Mecánica para ingeniería. Vol. 2, Dinámica. 5ª ed. México: Pearson Educación, 2008. ISBN 9789702612155.

Riley, William F.; Sturges, Leroy D. Ingeniería mecánica. Vol. 1, Estática. Barcelona: Reverté, 1995. ISBN 842914255X.

Riley, William F.; Sturges, Leroy D. Ingeniería mecánica. Vol. 2, Dinámica. Barcelona: Reverté, 1995. ISBN 8429142568.

Hibbeler, R. C. Ingeniería mecánica: estática. 12ª ed. México: Prentice Hall, 2010. ISBN 9786074426618.

Hibbeler, R. C. Ingeniería mecánica: dinámica. 12ª ed. México: Prentice Hall, 2010. ISBN 9786074425604.