

340054 - RMA1-M4O37 - Strength of Materials I

Coordinating unit:	340 - EPSEVG - Vilanova i la Geltrú School of Engineering		
Teaching unit:	737 - RMEE - Department of Strength of Materials and Structural Engineering		
Academic year:	2018		
Degree:	BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional) BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Teaching unit Optional)		
ECTS credits:	6	Teaching languages:	Catalan, Spanish

Degree competences to which the subject contributes

Specific:

2. CE14. Knowledge and application of basics of material resistance.
3. CE22. Knowledge and ability to apply basics of elasticity and resistance of materials into behavior of real solids.
4. CE23. Knowledge and ability to calculate and design structures and industrial constructions.

Transversal:

1. 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.
5. EFFECTIVE USE OF INFORMATION RESOURCES - Level 1. Identifying information needs. Using collections, premises and services that are available for designing and executing simple searches that are suited to the topic.

Learning objectives of the subject

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) Vector Tensió i Estat Tensional Pla	Learning time: 20h Theory classes: 6h Laboratory classes: 2h Self study : 12h
(ENG) Estat de Tensions Tridimensional	Learning time: 12h Theory classes: 4h Self study : 8h
(ENG) Estat de Deformacions en el Sòlid Elàstic	Learning time: 14h Theory classes: 4h Theory classes: 8h Laboratory classes: 2h
(ENG) Relacions entre Tensions i Deformacions	Learning time: 18h Theory classes: 6h Self study : 12h
(ENG) Anàlisi i Disseny de Bigues sotmeses a Flexió	Learning time: 42h Theory classes: 14h Laboratory classes: 2h Self study : 26h
(ENG) Càlcul de deformacions en Bigues Prismàtiques: Teoremes Energètics	Learning time: 44h Theory classes: 14h Laboratory classes: 2h Self study : 28h

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Bibliography

Basic:

Gere, James M.; Goodno, Barry J. Mecánica de materiales. 7a ed. México [etc.]: Cengage, 2009. ISBN 9789708300407.

Gere, James M. Resistencia de materiales. 5a ed. España [etc.]: International Thomson Editores, 2002. ISBN 9788497320658.

Complementary:

Beer, Ferdinand Pierre ; Johnston, E. Russell ; DeWolf, John ; Mazurek, David F.. Mecánica de materiales. 5a ed. México [etc.]: Mc Graw Hill, 2010. ISBN 9786071502636.