Last update: 28-05-2018

340203 - TESA-M7P37 - Experimental and Simulation Techniques for Stress Analysis

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 INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING (Syllabus 2009). (Teaching unit Optional)
BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Teaching unit Optional)

ECTS credits: 6 Teaching languages: Catalan, Spanish

Teaching staff

Coordinator: Elsa Pérez Guindal

Others: Elsa Pérez Guindal
Joan Totusaus Margalet

Degree competences to which the subject contributes

Specific:

0. CE22. Knowledge and ability to apply basics of elasticity and resistance of materials into behavior of real solids.

00. D4. Knowledge of material elasticity and resistance and its application to resolve engineering problems.

000. D5. Ability to carry out and analyze experiments of mechanism and resistant elements.

0000. D29. Knowledge of editing and technical documents representation.

Transversal:

07 AAT. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.
05 TEQ N1. 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.

Learning objectives of the subject

Learning different techniques for industrial use and computer simulation of stress and strain resistant parts, and in preparation of technical reports. It's delved into the electrical extensometry technique, the photoelasticity and FEM (Finite Element Method) using ANSYS. Trials are performed on resistant mechanical elements and internal stresses and strains are analyzed with each technique. The results are submitted in technical reports, in order to interpret data (based on theoretical calculations) and detect deviations from experimental tests, all this for the proper decision making in the future.

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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

	Learning time: 2h Theory classes: 2h
Description:	

	Learning time: 2h Theory classes: 2h
Description:	

	Learning time: 9h Theory classes: 2h Practical classes: 7h
Description:	

	Learning time: 9h Theory classes: 2h Practical classes: 7h
Description:	

	Learning time: 12h Theory classes: 12h
Description:	

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Bibliography

Basic:

Análisis experimental de tensiones. Bilbao: Urmo, 1970.