

## Course guides

# 310038 - 310038 - Diagnosis of Structural Elements Singular Actions in Existing Buildings II

Last modified: 03/03/2016

**Unit in charge:** Barcelona School of Building Construction  
**Teaching unit:** 705 - CA II - Department of Architectural Technology II.

**Degree:** Academic year: 2011 ECTS Credits: 3.0  
**Languages:** Catalan, Spanish

## LECTURER

---

**Coordinating lecturer:** EMILIO HORMIAS LAPERAL

**Others:** JUAN RAMON ROSELL AMIGO - JOAQUIN MONTON LECUMBERRI - MARIA ANTONIA NAVARRO  
EZQUERRA - MARC TOUS COLL

## DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

---

### Specific:

1. FB-1 Aptitude to use the applied knowledges related with the numerical and infinitesimal calculus, linear algebra, analytic and differential geometry, and the probabilistic and statistical analysis techniques and methods.
2. FB-2 Applied knowledge of the general mechanics principles, the statics of structural systems, the mass geometry, the principles and methods of analysis of the elasticity of solids.
3. FB-4 Knowledge of the chemical features of the materials used in construction, its fabrication processes, the methodology of the trials for determining its features, its geologic origin, the environmental impact, the recycling and the residues management.
4. FE-4 Knowledge of the materials and traditional or prefabricated construction systems used in construction, their varieties and physical and mechanical features which define them.
5. FE-9 Ability to rule about the causes and symptoms of the damages in the buildings, propose solutions to prevent or repair the diseases, and analyse the useful life cycle of the constructive elements and systems.
6. FE-10 Aptitude to intervene in the refurbishment of buildings and the restoration and preservation of the built heritage.

### Transversal:

7. 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.
8. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
9. TEAMWORK. Being able to work as a team player, either as a member or as a leader. Contributing to projects pragmatically and responsibly, by reaching commitments in accordance to the resources that are available.
10. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.

## TEACHING METHODOLOGY

---

## LEARNING OBJECTIVES OF THE SUBJECT

---

## STUDY LOAD

Type	Hours	Percentage
Hours medium group	3,9	5.20
Self study	42,0	56.00
Hours large group	16,2	21.60
Hours small group	3,9	5.20
Guided activities	9,0	12.00

**Total learning time:** 75 h

## CONTENTS

### (ENG) Contingut 1: INTRODUCCIÓ I DEFINICIONS

**Full-or-part-time:** 10h

Theory classes: 4h

Self study : 6h

### (ENG) Contingut 2: ESTRUCTURES DE FÀBRICA

**Full-or-part-time:** 23h

Theory classes: 4h

Practical classes: 2h

Laboratory classes: 2h

Guided activities: 3h

Self study : 12h

### (ENG) Contingut 3: SOSTRES UNIDIRECCIONALS

**Full-or-part-time:** 23h

Theory classes: 4h

Practical classes: 2h

Laboratory classes: 2h

Guided activities: 3h

Self study : 12h

### (ENG) Contingut 4: ESTRUCTURES DE FORMIGÓ

**Full-or-part-time:** 19h

Theory classes: 4h

Guided activities: 3h

Self study : 12h



## ACTIVITIES

---

**(ENG) PRÀCTICA DE CLASSE 1.COMPROVACIÓ PER CàLCUL D'UNA ESTRUCTURA DE FÀBRICA EXISTENT.(CONTINGUT 2)**

**Full-or-part-time:** 2h  
Practical classes: 2h

**(ENG) PRÀCTICA DE LABORATORI 1. COMPROVACIÓ EN OBRA DE L'ESTAT DE CÀRREGUES D'UNA PARET DE FÀBRICA MITJANÇANT L'UTILITZACIÓ DELS GATS PLANS.(CONTINGUT 2)**

**Full-or-part-time:** 2h  
Laboratory classes: 2h

**(ENG) PRÀCTICA DE CLASSE 2. COMPROVACIÓ PER CàLCUL D'UN SOSTRE UNIDIRECCIONAL DE BIGUETES DE FORMIGÓ. (CONTINGUT 3)**

**Full-or-part-time:** 2h  
Practical classes: 2h

**(ENG) PRÀCTICA DE LABORATORI 2. TRENCAMENT AL LABORATORI DE UN BIGUETA DE FORMIGÓ (CONTINGUT 3)**

**Full-or-part-time:** 2h  
Laboratory classes: 2h

**(ENG) DIAGNOSI D'UN EDIFICI EXISTENT (CONTINGUTS 2, 3 I/O 4)**

**Full-or-part-time:** 9h  
Guided activities: 9h

**(ENG) PROVA FINAL**

**Full-or-part-time:** 2h  
Theory classes: 2h

## GRADING SYSTEM

---



## BIBLIOGRAPHY

---

### Basic:

- Addlerson, Lyall. Materiales para la construcción. Barcelona: Edicions Reverté, 1983.
- Torroja Miret, Eduardo. Razón y ser de los tipos estructurales. 3a ed. Madrid: Consejo Superior de Investigaciones Científicas, CSIC, 2007.
- Casanovas, X. ... [et al.]. Manual de diagnosi i intervenció en sistemes estructurals de parets de càrrega. Barcelona: Col·legi d'Aparelladors i Arquitectes Tècnics de Barcelona, 1995.
- Genescà Ramon, Josep Ma. ; Rosell, Joan Ramon. Recomanacions per al reconeixement, la diagnosi i la teràpia d'estructures de fàbrica de maó [on line]. Barcelona: ITEC, 1997 [Consultation: 21/07/2010]. Available on: <http://www.itec.cat/nouPdf.c/detall.aspx?detall=510>.
- Gomà i Ginesta, Ferran. El Cemento Portland y otros aglomerantes : fundamentos para la interpretación de sus comportamientos en obra. Barcelona: Editores Técnicos Asociados, 1979.
- Casanovas X.; Graus R.; Rosell J.R. Manual de diagnosi i intervenció en sostres unidireccionals de formigó i ceràmics. Barcelona: Col·legi d'Aparelladors i Arquitectes Tècnics de Barcelona, 1993.
- Bellmunt, R. ... [et al.]. Manual de diagnosis e intervenció en estructures de hormigón armado. Barcelona: Col·legi d'Aparelladors i Arquitectes Tècnics de Barcelona, 2000.
- Genescà, J.M. ; Rosell, J.R. ; Gibert, V. Recomanacions per al reconeixement i la diagnosi d'estructures porticades de formigó armat que suporten estructures de fàbrica de maó [on line]. Barcelona: ITEC, 1999 [Consultation: 21/07/2010]. Available on: <http://www.itec.cat/nouPdf.c/detall.aspx?detall=506>.