

## 250470 - ESTREDIF - Building Structures

Coordinating unit:	250 - ETSECCPB - Barcelona School of Civil Engineering
Teaching unit:	751 - DECA - Department of Civil and Environmental Engineering
Academic year:	2019
Degree:	MASTER'S DEGREE IN STRUCTURAL AND CONSTRUCTION ENGINEERING (Syllabus 2015). (Teaching unit Optional) MASTER'S DEGREE IN STRUCTURAL AND CONSTRUCTION ENGINEERING (Syllabus 2009). (Teaching unit Optional) MASTER'S DEGREE IN CIVIL ENGINEERING (PROFESSIONAL TRACK) (Syllabus 2012). (Teaching unit Optional) MASTER'S DEGREE IN CIVIL ENGINEERING (PROFESSIONAL TRACK) (Syllabus 2012). (Teaching unit Optional)
ECTS credits:	5
Teaching languages:	English

### Teaching staff

Coordinator:	CLIMENT MOLINS BORRELL
Others:	CLIMENT MOLINS BORRELL, PEDRO ROCA FABREGAT, MIQUEL RODRIGUEZ NIEDENFÜHR, VICENTE VILLALBA HERRERO

### Degree competences to which the subject contributes

#### Specific:

8162. Knowledge of all kinds of structures and materials and the ability to design, execute and maintain structures and buildings for civil works.

8228. Knowledge of and competence in the application of advanced structural design and calculations for structural analysis, based on knowledge and understanding of forces and their application to civil engineering structures. The ability to assess structural integrity.

#### Transversal:

8559. ENTREPRENEURSHIP AND INNOVATION: Being aware of and understanding the mechanisms on which scientific research is based, as well as the mechanisms and instruments for transferring results among socio-economic agents involved in research, development and innovation processes.

8560. SUSTAINABILITY AND SOCIAL COMMITMENT: Being aware of and understanding the complexity of the economic and social phenomena typical of a welfare society, and being able to relate social welfare to globalisation and sustainability and to use technique, technology, economics and sustainability in a balanced and compatible manner.

8561. TEAMWORK: Being able to work in an interdisciplinary team, whether as a member or as a leader, with the aim of contributing to projects pragmatically and responsibly and making commitments in view of the resources that are available.

### Learning objectives of the subject

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### Study load

Total learning time: 125h	Theory classes:	19h 30m	15.60%
	Practical classes:	9h 45m	7.80%
	Laboratory classes:	9h 45m	7.80%
	Guided activities:	6h	4.80%
	Self study:	80h	64.00%

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### Content

Functions and systems of the building	Learning time: 7h 11m Theory classes: 3h Self study : 4h 11m
Structural system: floor slabs	Learning time: 28h 47m Theory classes: 8h Practical classes: 4h Self study : 16h 47m
Building physics	Learning time: 14h 23m Theory classes: 4h Practical classes: 2h Self study : 8h 23m
Structural system: lateral stability	Learning time: 14h 23m Theory classes: 3h Practical classes: 2h Laboratory classes: 1h Self study : 8h 23m
Earthquake resistant design of buildings	Learning time: 21h 36m Theory classes: 6h Practical classes: 3h Self study : 12h 36m
Special Buildings	Learning time: 7h 11m Practical classes: 2h Laboratory classes: 1h Self study : 4h 11m

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### Bibliography

#### Basic:

Calavera, J. Proyecto y cálculo de estructuras de hormigón armado para edificios. 2a ed. Madrid: Intemac, 1984-1985. ISBN 843981108X (V. 1) ; 8439840039 (V. 2).

Marí, A.R.; Molins, C.; Bairán, J.M.; Oller, E. Formigó armat i pretensat: exercicis curts de bases de càlcul i estats límits, adaptat a la Instrucció EHE-08. 2a ed. Barcelona: Edicions UPC, 2009. ISBN 978-84-9880-390-7.

Bozzo, L.M., Barbat, A.H.. Diseño sismorresistente de edificios: técnicas convencionales y avanzadas. Barcelona: Reverté, 2000.

Ministerio de Fomento. EHE-08: Instrucción para el proyecto y la ejecución del hormigón estructural.. Madrid, 2008.

Ministerio de la Vivienda. Documento básico SE Seguridad Estructural.. 2006.

Ministerio de la Vivienda. Documento Básico SI Seguridad en caso de incendio.. 2006.

Ministerio de Fomento. Normativa construcción sismoresistente NCSR-02. Madrid, 2002.

Comisión Permanente del Hormigón. Guía de la aplicación de la Instrucción de Hormigón Estructural. Edificación. Madrid: Ministerio de Fomento, 2002.