

250472 - ANPROESTAC - Analysis and Design of Steel 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:	Catalan, Spanish, English

Teaching staff

Coordinator:	ENRIQUE MIRAMBELL ARRIZABALAGA
Others:	ROLANDO ANTONIO CHACÓN FLORES, ENRIQUE MIRAMBELL ARRIZABALAGA, ESTHER REAL SALADRIGAS

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

1.The steel material.	Learning time: 7h 11m Theory classes: 3h Self study : 4h 11m
2.Design os structural elements in front of brittle fracture and fatigue.	Learning time: 14h 23m Theory classes: 3h Practical classes: 3h Self study : 8h 23m
Ultimate Limit States	Learning time: 21h 36m Theory classes: 6h Practical classes: 3h Self study : 12h 36m
Assessment 2	Learning time: 7h 11m Laboratory classes: 3h Self study : 4h 11m
Joints	Learning time: 14h 23m Theory classes: 3h Practical classes: 3h Self study : 8h 23m
Built-up elements	Learning time: 7h 11m Theory classes: 3h Self study : 4h 11m

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Structural types	Learning time: 7h 11m Practical classes: 3h Self study : 4h 11m
Accidental actions	Learning time: 7h 11m Theory classes: 3h Self study : 4h 11m
Assessment 3	Learning time: 7h 11m Laboratory classes: 3h Self study : 4h 11m

Bibliography

Basic:

Comisión Permanente de Estructuras de Acero. EAE: instrucción de acero estructural: con comentarios de los miembros de la Comisión Permanente de Estructuras de Acero. Madrid: Ministerio de Fomento. Secretaría General Técnica, 2011. ISBN 978-84-498-0904-0.

CEN. UNE-EN 1993-1-1:2008/AC: Eurocódigo 3: proyecto de estructuras de acero: Parte 1-1: Reglas generales y reglas para edificios. Madrid: AENOR, 2010.

CEN. UNE-EN 1993-1-3:2009 Eurocódigo 3: Proyecto de estructuras de acero. Parte 1-3: Reglas generales. Reglas adicionales para perfiles y chapas de paredes delgadas conformadas en frío.. AENOR, 2009.

CEN. UNE-EN 1993-1-8:2011 Eurocódigo 3: Proyecto de estructuras de acero. Parte 1-8: Uniones. AENOR, 2011.

Alfredo Arnedo Pena. Naves industriales con acero.. Publicaciones APTA, 2009. ISBN 978-84-692-2274-4.