Course guides
250702 - 250702 - Workshops and Research Seminars

Unit in charge: Barcelona School of Civil Engineering
Teaching unit: 751 - DECA - Department of Civil and Environmental Engineering.
Degree: MASTER'S DEGREE IN STRUCTURAL AND CONSTRUCTION ENGINEERING (Syllabus 2015). (Compulsory subject).
Academic year: 2020  ECTS Credits: 5.5  Languages: Spanish, English

LECTURER
Coordinating lecturer: EVA MARIA OLLER IBARS
Others: JESÚS MIGUEL BAIRÁN GARCÍA, ROLANDO ANTONIO CHACÓN FLORES, ALBERT MAS SOLER, EVA MARIA OLLER IBARS

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
13364. To conceive and design civil and building structures that are safe, durable, functional and integrated into its surroundings.
13365. Designing and building using traditional materials (reinforced concrete, prestressed concrete, structural steel, masonry, wood) and new materials (composites, stainless steel, aluminum, shape memory alloys?).
13366. To evaluate, maintain, repair and strengthen existing structures, including the historic and artistic heritage.
13367. To apply innovative and sustainable technological aspects in the management and implementation of projects and works.
13370. To analyze the multiple technical and legal conditions arising in the construction of public works, and use proven methods and proven technologies with the aim of achieving greater efficiency in construction while respecting the environment and protecting the safety and health of workers and users of public works.

General:
13360. To conceive, design, analyze and manage structures or structural elements of civil engineering or building, encouraging innovation and the advance of knowledge.
13361. To develop, improve and use conventional materials and new construction techniques to ensure the safety requirements, functionality, durability and sustainability.
13362. To define construction processes and methods of organization and management of projects and works.
13363. To design plans for safety, quality and environmental and socioeconomic impacts related to the construction process.

TEACHING METHODOLOGY
The course consists of 3 hours per week of classroom activity (large size group).

The 3 hours in the large size groups are devoted to theoretical lectures, in which the teacher presents the basic concepts and topics of the subject, shows examples and solves exercises.

Support material in the form of a detailed teaching plan is provided using the virtual campus ATENEA: content, program of learning and assessment activities conducted and literature.
LEARNING OBJECTIVES OF THE SUBJECT

Subject to know the latest trends in research related to structural engineering and construction and other cross-cutting issues

- Knowledge of the latest trends in research related to structural engineering and construction.
- Knowledge of analysis programs and management structures.
- Seminars on the latest advances in research related to the three masters itineraries: structural analysis, technology of structures and construction.
- Seminars related to the development of the master thesis: scientific method, writing scientific and technical documents, using database to search scientific articles for the development of state of the art.
- Workshops on the development of a draft structural engineering.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guided activities</td>
<td>6,6</td>
<td>4.80</td>
</tr>
<tr>
<td>Hours medium group</td>
<td>10,7</td>
<td>7.78</td>
</tr>
<tr>
<td>Hours small group</td>
<td>10,7</td>
<td>7.78</td>
</tr>
<tr>
<td>Hours large group</td>
<td>21,5</td>
<td>15.64</td>
</tr>
<tr>
<td>Self study</td>
<td>88,0</td>
<td>64.00</td>
</tr>
</tbody>
</table>

Total learning time: 137.5 h

CONTENTS

Computer programs

Description:
Program SAP2000
SAP2000 program. Case study
BIM Software
BIM software. Case study
Software Diamonds
Software Diamonds. Practical case
Digital Manufacturing
Matlab

Full-or-part-time: 60h
Theory classes: 14h
Practical classes: 10h
Laboratory classes: 1h
Self study : 35h
Subjects related with the master thesis

Description:
Gathering information and bibliography
References
How to write scientific and technical documents
Making presentations
Budget of a project
Budget of a project. Case study
Workshop project conception

Full-or-part-time: 36h
Theory classes: 10h
Practical classes: 2h
Laboratory classes: 3h
Self study: 21h

Seminars

Description:
Seminars

Full-or-part-time: 7h 11m
Theory classes: 3h
Self study: 4h 11m

GRADING SYSTEM

The mark of the course is obtained from the ratings of continuous assessment and their corresponding laboratories and/or classroom computers.

Continuous assessment consist in several activities, both individually and in group, of additive and training characteristics, carried out during the year (both in and out of the classroom).

The teachings of the laboratory grade is the average in such activities.

The evaluation tests consist of a part with questions about concepts associated with the learning objectives of the course with regard to knowledge or understanding, and a part with a set of application exercises.

EXAMINATION RULES.

Failure to perform a laboratory or continuous assessment activity in the scheduled period will result in a mark of zero in that activity.

BIBLIOGRAPHY

Basic: