310408 - New Industrialized Techniques Applied to Building Construction

Coordinating unit: 310 - EPSEB - Barcelona School of Building Construction
Teaching unit: 753 - TA - Department of Architectural Technology
Academic year: 2018
Degree: MASTER'S DEGREE IN ADVANCED BUILDING CONSTRUCTION (Syllabus 2014). (Teaching unit Optional)
ECTS credits: 5
Teaching languages: Catalan, Spanish

Teaching staff
Coordinator: Agustí Portales Pons

Opening hours
Timetable: The day of class two hours before the session.

Prior skills
Grade in aspects related with the architecture, the construction or the civil engineering.

Degree competences to which the subject contributes

Basic:
2. Possess and understand knowledge which provide a basis or opportunity to be original in the development and/or application of ideas, usually in a context of research.
3. The students must be able to apply the acquired knowledges and their ability of resolution of problems in new or little known environments inside more wide environments (or multidisciplinary) related with their study field.
4. The students must be able to integrate knowledges and front to the complexity to formulate opinions from an information which, being incomplete or limited, includes reflections about the social and ethical responsibilities linked to the application of their knowledges and opinions.
5. The students must be able to communicate their conclusions and the knowledges and ultimate reasons which support to specialised and non-specialised audiences in a clear mode and without ambiguities.
1. The students must possess the learning abilities which allow them to continue studying in a way which should be to a large extent self-directed and autonomous.

Specific:
9. Design climatization objects, lifts, security systems and surveillance, domotic installations and network of communication and information.
10. Define the characteristics of the seismic action and apply the present regulations to the seismic calculation of structures in building construction.
CE1. Capacity of innovation: identify the reasons and the mechanisms of the technologic and technical changes.

Generical:
6. Provide to the student the capacity to apply the knowledge acquired in the resolution of complex problems in any sector of the building construction.
7. Analyse, evaluate and synthesise critically, new and difficult ideas of promotion, in academic and professional contexts, scientific advances, technologics, socials or culturals in the society of knowledge.

Transversal:
8. ENTREPRENEURSHIP AND INNOVATION: Knowing about and understanding how businesses are run and the sciences that govern their activity. Having the ability to understand labor laws and how planning, industrial and marketing strategies, quality and profits relate to each other.
11. SUSTAINABILITY AND SOCIAL COMMITMENT. Being aware of and understanding the complexity of social and
经济现象，能够将福利社会和全球化、可持续性联系起来。能够以平衡的方式使用技术、技术和经济以及可持续性。

学习目标

知识掌握的范围和能够应用的科技进步。能够处理福利项目和计划。

教学方法

将结合课堂授课、指导学习和自主学习的方法。通过三种方法的结合，必须达到知识、理解、分析和批判能力以及在特定案例上的应用。

在课堂授课中，将特别关注清晰性、准确性和展示顺序，由教师完成。将给全班学生提供必要的文档，以便更好地跟随课程。学生可以在预定的临时空间参与并讨论发展话题。

将进行指导的个人工作，其中将应用论文典型的工作方法和概念。

研究负荷

<table>
<thead>
<tr>
<th>总学习时间: 125小时</th>
<th>课堂学习时间: 15小时</th>
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<tbody>
<tr>
<td>中等组学习时间: 5小时</td>
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<tr>
<td>小组学习时间: 5小时</td>
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<tr>
<td>导师活动时间: 10小时</td>
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<tr>
<td>自主学习时间: 90小时</td>
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## Content

<table>
<thead>
<tr>
<th>C-1 INTRODUCCIÓN</th>
<th>Learning time: 31h 25m</th>
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<tbody>
<tr>
<td></td>
<td>Theory classes: 9h 40m</td>
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<tr>
<td></td>
<td>Guided activities: 3h</td>
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<tr>
<td></td>
<td>Self study : 18h 45m</td>
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**Description:**
The student is placed on the course context and thinks about the project analysis tools oriented to its physical materialization in an efficient and respectful way with the environment.

**Related activities:**
Introduction to the individual work.

**Specific objectives:**
Promote and increase the basic knowledges as a tool to use in future interventions.
Introduce work ways with analytical and critical basis.
Increase the syntesis and extension abilities.

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<tr>
<th>C-2 LOS MATERIALES HIerro-ACERO, TUBOS CABLES Y MEMBRANAS, HORMIGÓN ARMADO, MADERA LAMINADA ENCOLADA.</th>
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<td></td>
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**Description:**
There will be analyzed the evolution and the abilities of the main construction materials and the applications on the constructions which, in their moment, constituted technologic avant-garde; the reasons of their abandonment and the possibilities which currently can offer.

**Related activities:**
Debate about concepts and ideas expressed by the professor. Beginning of the oriented work.
Fulfilment of the first midterm test.

**Specific objectives:**
Ability to know and apply a wide range of constructive resources for the developing of real projects.
### C-3 MODELOS EDIFICATORIOS. EDIFICIOS EN ALTURA Y VIVIENDA COLECTIVA.

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**Description:**
The analysis of the construction models with major influence in the construction field facilitates the comprehension of the multiple interactions which are produced during the design-execution process. It is essential the knowledge of the possibilities of the materials seen in the previous content.

**Related activities:**
Debate at class about the explained concepts and development of the oriented work.

**Specific objectives:**
Provide the students with a basic information to develop, efficiently and technically correct, their professional tasks.

### C-4 INTERVENCIONES ESTRUCTURALES BAJO Y SOBRE RASANTE. VASOS DE EDIFICACION PROFUNDOS.

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**Description:**
There will be exposed the most advanced and safe techniques to carry out complex structural interventions. In the same way there will be put attention on the difficulties and procedures to do deep construction cups. The knowledge of the possibilities of the techniques explained is essential for the professionals, who in a lot of cases, need to build over the built.

**Related activities:**
Delivery of the oriented work at the end of the sessions. Realization of the second midterm test.

**Specific objectives:**
Offer a wide range of constructive solutions to complex structural situations from their analysis and application of solutions of proven efficiency.
Planning of activities

**A-1 DEBATES**

| **Description:** |  
During the session, if necessary, the professor will question the students about prominence aspects appeared during the class with the purpose of facilitate the debate and the involvement of the class group. |
| **Support materials:** | The debate deals with, essentially, the graphical and photographic content of the sessions. |
| **Specific objectives:** | Facilitate the comprehension of the aspects explained during the session.  
Improve the public expression ability of the students. |
| **Hours:** | 2h  
Theory classes: 2h |

**A-2 TRABAJO DE LIBRE ELECCIÓN SOBRE ASPECTOS TRATADOS EN EL CURSO.**

| **Description:** | Each student will reach an agreement individually with the professor, choosing a topic and a development scheme during the first three weeks of the course. There are important the formal aspects, structure, quotes, graphical and photographic documentation, bibliography and conclusions. |
| **Support materials:** | The work will be presented, for its evaluation, in paper format with simple binding. Once corrected the works will be returned at the request of the students. |
| **Specific objectives:** | Consolidate the knowledges acquired.  
Increase the knowledge of the students on specific topics of their interest.  
Help to structurate the expositions to deal with works of major magnitude. |
| **Hours:** | 20h  
Self study: 20h |

Qualification system

CONTINOUS EVALUATION. During the scheduled periods for exams of the school calendar there will be done two midterm exams with 5 questions each one of theoretical and practical nature. Each question has a maximum worth of 2 points and will be evaluated by fractions of 0,5 points.  
Mark over a maximum of 10 points.  
The first exam supposes the 30% of the totality, the second the 30% and the individual directed work the 40%.  
FINAL MARK = Exam 1 30% + Exam 2 30% + TID 40%. Pass with 5.

Regulations for carrying out activities

If some of the continuos evaluation activities is not done, it will be considered with a mark of 0.  
The problems dedicated form the evaluations or the justified impossibility of attendande to a test will be solved, firstly, between the professor and the student.
Bibliography

Basic:


Complementary:


