310415 - Historical-Architectural-Constructive Analysis of Existing Buildings

Coordinating unit: 310 - EPSEB - Barcelona School of Building Construction
Teaching unit: 756 - THATC - Department of History and Theory of Architecture and Communication Techniques
751 - DECA - Department of Civil and Environmental Engineering

Academic year: 2019
Degree: MASTER'S DEGREE IN ADVANCED BUILDING CONSTRUCTION (Syllabus 2014). (Teaching unit Optional)
ECTS credits: 5
Teaching languages: Spanish

Teaching staff
Coordinator: Maribel Rosselló Nicolau
Others: Felipe Buil Pozuelo

Degree competences to which the subject contributes

Basic:
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.
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.

Specific:
6. Capacity of innovation: identify the reasons and the mechanisms of the technologic and technical changes.
7. Evaluate the performance of a ground according to its characteristics and the kind of foundation.
8. Make a model of structures of buildings and evaluate the load they can support.

General:
10. Provide to the student the capacity to apply the knowledge acquired in the resolution of complex problems in any sector of the building construction.
11. Prepare to communicate with efficiency, orally but also in written.

Transversal:
9. 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

The subject is organised, in first place, by masterful classes, where the faculty will present the basic guidelines which define each one of the contents of the subject. Secondly, in some of the sessions one part of them will be dedicated to individual expositions of the participants of the class. Concurrently, we will analyze a common study case as a guide and a practice.

There will also be done some isolated exercises linked to the graphical elevations.

Learning objectives of the subject

Recognise the materials, the techniques and the spatial structures of the quotidian built heritage.
Recognise the technical changes produced in the construction process in the transition from the pre-industrial world to the industrial world.
Value the application of the materials, the techniques and the spatial structures in the architecture of each historical moment.
Value the interrelations between the monumental architecture and the quotidian residential architecture.
Determine the period of construction of a building.
Use the existing tools and resources for the documentation of a building.
Use and apply the advanced techniques of graphical elevation (terrain photogrammetry, laser scanner, etc.) of the building.

Study load

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<th>Hours large group:</th>
<th>15h</th>
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<td>Hours medium group:</td>
<td>5h</td>
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<td>Hours small group:</td>
<td>5h</td>
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<td></td>
<td>Guided activities:</td>
<td>10h</td>
<td>8.00%</td>
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<td>Self study:</td>
<td>90h</td>
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<td>Learning time: 2h</td>
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<td>Theory classes: 2h</td>
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**Description:**
Knowledge and analysis of the own residential architecture of a pre-industrial context taking into account its configuration, materials, techniques and spatial structures which make it possible.
Study the architectural and constructive features of the masia, the urban buildings and the buildings linked to determined geographical and physical contexts.
Learning time: 15h
Theory classes: 12h
Guided activities: 3h

Description:

XVIII Century and beginnings of the XIX century.
Historical-architectural contextualisation. Study of the residential architecture ("la casa d'escaleta", palaces and big homes, la Barceloneta as example).
Study of the manufacturing architecture. Masonry and catalan vault.

Changes in the middle of XIX century.

Changes in the last third of the XIX century.

Beginnings of the XX century (from 1914 to 1936).

Post-war years.

Recovery years.

The boom of the construction.
#### Knowledge and Use of Different Documentary Sources Suitable for the Study and Documentation of a Building

**Learning time:** 6h  
Theory classes: 2h  
Guided activities: 4h

**Description:**  
Know and use the different documentary sources suitable for the study and documentation of a building.  

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#### Knowledge and Use of the Existing Tools and Resources for the Graphical Documentation of a Building

**Learning time:** 3h  
Theory classes: 3h

**Description:**  
Know and use the existing tools and resources for the graphical documentation of a building.  
Know and use the advanced techniques of graphical elevation of buildings in the inspection of the existing buildings.

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#### Knowledge and Use of the Advanced Techniques of Graphical Elevations of Buildings in the Inspection of the Existing Buildings

**Learning time:** 9h  
Theory classes: 6h  
Guided activities: 3h

**Description:**  
Tools. Direct and indirect methods. Geometrical basis.  
Photogrammetry. 3D digitizers. Laser scanner.  
Know and use the tools and the topographic and photogrammetrical methods suitable for the fulfilment of non-cartographic elevations.  
Know and use the advanced tools of the graphical elevations (terrain photogrammetry, laser scanner, etc.) of the building.  
Practical case.
Planning of activities

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<tr>
<th>name english</th>
<th>Hours: 3h</th>
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<td>Theory classes: 3h</td>
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**Description:**
Visit an archive of the architecture field to know by first hand the features of the documentary collection.

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<th>Hours: 3h</th>
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<td>Guided activities: 3h</td>
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**Description:**
Do a practical exercise. Validate some of the contents of the sessions.

Qualification system

The competences of the subject define two areas: the ones regarding to the historical, architectural and constructive knowledge of the heritage, on the one hand from the knowledge of the documentary sources and the contextualisation of the same heritage (70%) and, by the other hand, from the graphical representation by means of the application of advanced techniques (30%).
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Bibliography

Basic:


Complementary:

