310417 - Integral Valuation of the Existing Building. Structural Analysis

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: Spanish

Teaching staff
Coordinator: Joan Ramon Rosell
Others: Joan Ramon Rosell, Antònia Navarro, Romà Crespiera

Opening hours
Timetable: To agree.

Requirements
To have coursed the subjetc INTRODUCCIÓ A LA REHABILITACIÓ DE LA EDIFICACIÓ EXISTENT of the same Master.

Degree competences to which the subject contributes

Basic:
CB6. 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.
CB10. 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.
CB9. 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.
CB7. 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.
CB8. 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.

General:
CG5. Analyse, evaluate and synthesise critically, new and difficult ideas of promotion, in academic and professional contexts, scientific advances, technologics, socials or cultural in the society of knowledge.
CG1. Provide to the student the capacity to apply the knowledge acquired in the resolution of complex problems in any sector of the building construction.
CG6. Obtain results that can be transfered to the building construction sector, through the applied investigation, the technological development and the innovation.
Teaching methodology

Exposition participative class.
Tutorials and questions.
Guidance of the works and autonomous practices.
Tests.

Learning objectives of the subject

The subject provides to the students the knowledges and abilities necessary for the evaluation of a building and its components for achieving to the corresponding diagnosis, from the analysis of the symptoms and dysfunction observed, the global behaviour of the building during the time and the results of the survey and the structural analysis.

1. General concepts. There will be laid out different concepts and their importance in the evaluation of a building. Safety, risk, use, comfort, application regulations, etc.
2. Analysis from the symptoms, the damages and the dysfunctions observed.
2.1 Global reading of the available information.
2.2 Development of hypothesis and planning of the verification means.
3.1 Necessary parameters: geometry, material features and efforts.
3.2 Modelling and analysis: Determination of efforts and deformations of fundamental structural elements like slabs, joists, beams, pillars and foundations.
3.3 Limit states: Verifications and necessity of intervention.
4. Evaluation of the hygrothermal comfort.
5. Diagnosis.

Study load

<table>
<thead>
<tr>
<th>Total learning time: 125h</th>
<th>Hours large group: 15h</th>
<th>12.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group: 5h</td>
<td>4.00%</td>
</tr>
<tr>
<td></td>
<td>Hours small group: 5h</td>
<td>4.00%</td>
</tr>
<tr>
<td></td>
<td>Guided activities: 10h</td>
<td>8.00%</td>
</tr>
<tr>
<td></td>
<td>Self study: 90h</td>
<td>72.00%</td>
</tr>
</tbody>
</table>
### Content

<table>
<thead>
<tr>
<th>title english</th>
<th>Learning time: 28h 40m</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 12h</td>
</tr>
<tr>
<td></td>
<td>Self study: 16h 40m</td>
</tr>
</tbody>
</table>

**Description:**
content english

<table>
<thead>
<tr>
<th>title english</th>
<th>Learning time: 30h 40m</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 14h</td>
</tr>
<tr>
<td></td>
<td>Self study: 16h 40m</td>
</tr>
</tbody>
</table>

**Description:**
content english

### Qualification system

Written test of control of the knowledge with a weight in the final mark between the 60% and the 40%. Group works presented in writing and/or orally with a weight in the final mark between the 60% and the 40%.

### Bibliography