310068 - Rehabilitation Projects

**Coordinating unit:** 310 - EPSEB - Barcelona School of Building Construction

**Teaching unit:** 753 - TA - Department of Architectural Technology

**Academic year:** 2018

**Degree:**
- BACHELOR'S DEGREE IN BUILDING CONSTRUCTION SCIENCE AND TECHNOLOGY (Syllabus 2009). (Teaching unit Optional)
- BACHELOR'S DEGREE IN ARCHITECTURAL TECHNOLOGY AND BUILDING CONSTRUCTION (Syllabus 2015). (Teaching unit Optional)

**ECTS credits:** 3

**Teaching languages:** Catalan

### Degree competences to which the subject contributes

#### Specific:

1. FE-13 Ability to apply the technical regulation to the construction process, and generate documents of technical specification in the constructive procedures and methods of buildings.
2. FE-23 Ability to draft and calculate basic prices, auxiliary prices, single and split prices of the construction units; analyse and control the costs during the construction process; make budgets.
3. FE-28 Aptitude to write technical projects of constructions, which don’t require architectural projects, as well as projects of demolition and design.
4. FE-29 Aptitude to write documents which are part of execution projects made in a multidisciplinary form.
5. FE-30 Ability of analysis of the execution projects and their transfer to the execution in constructions.

#### Transversal:

6. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.
7. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
8. TEAMWORK. Being able to work as a team player, either as a member or as a leader. Contributing to projects pragmatically and responsibly, by reaching commitments in accordance to the resources that are available.
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 in-person learning hours consist on theoretical classes where the professor does a brief exposition to introduce the general learning objectives related with the basic concepts of the subject. Subsequently and by practical exercises, the professor motivates and involves the students so that they can participate actively in their learning.

The lab learning is planned from the monitoring of an activity during all the course which could be put into practice the different objectives of the subject.

It exists a specific teaching material which allows the student to acquire the necessary knowledge of each one of the subject contents.

### Learning objectives of the subject

The subject wants to provide to the students the necessary elements for doing an analysis in the diagnosis of a building, so that they can define a coherent programme for the future uses and write a restoration project of an existing building which contain all the necessary elements from a technical and documentary point of view.
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It must allow the students to finish their studies with a good basis for specializing in the realization of diagnosis, projects and other restoration works of existing buildings.

At the end of the subject, the students should be able to:

- Understand the values and the condition of a building in a comprehensive form.
- Evaluate the possibilities that the building offers and take advantage of them for future uses.
- Define with precision the restoration works to do.
- Represent graphically the interventions to do.
- Adjust a measurement state in the real construction lots of the project.
- Materialise, technically and documentally, a restoration project.

### Study load

<table>
<thead>
<tr>
<th>Total learning time: 75h</th>
<th>Hours large group:</th>
<th>12h</th>
<th>16.00%</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group:</td>
<td>9h</td>
<td>12.00%</td>
</tr>
<tr>
<td></td>
<td>Hours small group:</td>
<td>9h</td>
<td>12.00%</td>
</tr>
<tr>
<td></td>
<td>Guided activities:</td>
<td>0h</td>
<td>0.00%</td>
</tr>
<tr>
<td></td>
<td>Self study:</td>
<td>45h</td>
<td>60.00%</td>
</tr>
</tbody>
</table>
## Content

<table>
<thead>
<tr>
<th>C1 Introduction, methodology and criteria in intervention.</th>
<th>Learning time: 6h</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong> In this content the students work:</td>
<td>Theory classes: 2h</td>
</tr>
<tr>
<td>An introduction to the concepts related with the intervention in existing buildings, a methodological presentation of the processes to follow and the criteria used over time.</td>
<td>Self study: 4h</td>
</tr>
<tr>
<td><strong>Related activities:</strong> Activity 1: Restoration project. Applied practice. Activity 4: Individual evaluation exam. Theoretical explanation at class.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C2 Intervention techniques in rehabilitation</th>
<th>Learning time: 31h</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong> In this content the students work:</td>
<td>Theory classes: 8h</td>
</tr>
<tr>
<td>Intervention techniques for the correction of damages in materials and constructive systems, and for the improvement of the building features (Structure, façades, enclosures, energy efficiency, humidity...).</td>
<td>Practical classes: 10h</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C3 Documentation and graphic representation of the project</th>
<th>Learning time: 38h</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description:</strong> In this content the students work: Draft as a first approximation. Documentation of the project. The Report and the measuring State. Graphic representation of the project and constructive details.</td>
<td>Laboratory classes: 10h</td>
</tr>
<tr>
<td><strong>Related activities:</strong> Theoretical explanation at class. Activity 1: Restoration project. Applied practice. Activity 3: Oral exposition at class of the progress of the restoration project.</td>
<td>Self study: 28h</td>
</tr>
</tbody>
</table>
### Planning of activities

<table>
<thead>
<tr>
<th>A1 PROJECT OF REHABILITATION. APPLIED PRACTICE.</th>
<th>Hours: 50h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical classes: 5h</td>
<td></td>
</tr>
<tr>
<td>Laboratory classes: 5h</td>
<td></td>
</tr>
<tr>
<td>Self study: 40h</td>
<td></td>
</tr>
</tbody>
</table>

**Description:**
Realisation of a course exercise. The students, in groups of 3 members, will develop a restoration project about a real building. The building must be chosen, proposed by the faculty or the students (with the approval of the professor). Depending on the features of the selected building there will be defined the necessary contents of the work to develop.

**Support materials:**
- Restoration projects, available at the library, done by former students as TFC.
- Contents and material provided during the theory sessions.
- Complementary and specific bibliography.

**Descriptions of the assignments due and their relation to the assessment:**
There are two intermediate corrections and at the end of the four-month term the work is deliveried and evaluated. It represents the 50% of the final evaluation.

**Specific objectives:**
- At the end of the practice the students should be able to:
  - Understand the values and the condition of a building in a comprehensive form.
  - Evaluate the possibilities which the building offers and take advantage of them in future uses.
  - Define with precision the restoration works to do.
  - Represent graphically the interventions to do.
  - Adjust a measurement state to the real construction lots of the project.
  - Materialise, technically and documentally, a restoration project.

<table>
<thead>
<tr>
<th>A2 DIVERSE PRACTICES APPLIED TO THE THEORETICAL KNOWLEDGE OBTAINED</th>
<th>Hours: 4h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory classes: 2h</td>
<td></td>
</tr>
<tr>
<td>Self study: 2h</td>
<td></td>
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</tbody>
</table>

**Description:**
Practical activities related with the progress on the contents and the restoration Project, in-person at class or by ATENEÁ (AD).

**Support materials:**
- Contents and material provided during the theory sessions.
- Complementary and specific bibliography.

**Descriptions of the assignments due and their relation to the assessment:**
The results will be deliveried and corrected by the faculty. It represents a part of the continous evaluation (10%).

**Specific objectives:**
- This activity allows to do a following in the progress and consolidation of the knowledge by the students.
- The faculty and the students will use this tool for persevering and going deep into the negative aspects.

<table>
<thead>
<tr>
<th>A3 ORAL EXPOSITION IN THE ANTICIPATED CLASS OF THE REHABILITATION PROJECT.</th>
<th>Hours: 5h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory classes: 2h</td>
<td></td>
</tr>
<tr>
<td>Self study: 3h</td>
<td></td>
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</tbody>
</table>

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**Hours:** 50h

**Theory classes:** 2h

**Laboratory classes:** 2h

**Self study:** 40h
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**Description:**
Exposition at class of the essential aspects treated in each project and the way to confront them. Regularly, the students must prepare a presentation of their project to expose it at class with limited time.

**Support materials:**
Material made by the students.

**Descriptions of the assignments due and their relation to the assessment:**
It allows to evaluate the progress in the knowledge and the practice in process, to orientate the aspects detected as weak and reinforce the contents well orientated. It represents a part of the continuous evaluation (10%).

**Specific objectives:**
At the end of the activity the students should be able to:
- Communicate orally in an efficient way.
- Use the appropriate strategies in the presentation of their work.
- Take advantage of the experience acquired to improve the course work.

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**A4 INDIVIDUAL TEST OF EVALUATION**

<table>
<thead>
<tr>
<th>Hours: 2h</th>
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<tbody>
<tr>
<td>Theory classes: 2h</td>
</tr>
</tbody>
</table>

**Description:**
Individual written exam at class for evaluate the minimum theoretical concepts of the contents of the subject. Correction by the faculty.

**Support materials:**
Exam wording.

**Descriptions of the assignments due and their relation to the assessment:**
It represents a 30% of the final evaluation.

**Specific objectives:**
At the end of the activity the students should be able to:
- Write correctly.
- Express the knowledge in an efficient and understandable way.
- Explain the intervention systems in the damage correction and the improvement of the existing buildings.

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**Qualification system**

The final mark is the addition of these partial marks:

\[ N_{\text{final}} = 0.50 \times A_1 + 0.10 \times A_2 + 0.10 \times A_3 + 0.30 \times A_4. \]

An = The different activities.

The continuous evaluation consists on doing different activities, individually or in groups, with summative and educational nature, done during the course (in and out of class).

The different activities contain the theory, practice and lab hours.

**Regulations for carrying out activities**

If some of the continuous evaluation or lab activities is not done, it will be considered as non-marked.

All the activities contain all the teaching methodologies used and the objectives which must be assumed in the subject.
**Bibliography**

**Basic:**


**Complementary:**


Loggia: arquitectura & restauración. València: Universitat Politècnica de València, 1996-


**Others resources:**

http://www.rehabimed.net/ca_es/Paginas/llibres.aspx
http://www.itec.es/nouPDF.e/presentacio.aspx