310413 - Environmental and Architectural Acoustics

Coordinating unit: 310 - EPSEB - Barcelona School of Building Construction
Teaching unit: 748 - FIS - Department of Physics
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: Peñaranda Ayllón, Angelina
Others: Auguet Sangrá, Carlota Eugenia

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:
6. Use the physic principles in the thermic, luminic and acoustic scope.
9. Recognise the materials and construction techniques of each historical period and value its influence in the architecture design.

General:
7. Provide to the student the capacity to apply the knowledge acquired in the resolution of complex problems in any sector of the building construction.
CG2. Prepare to communicate with efficiency, orally but also in written.

Transversal:
10. 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.
11. 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.

Learning objectives of the subject
## Study load

<table>
<thead>
<tr>
<th>Study load</th>
<th>Hours large group:</th>
<th>15h</th>
<th>12.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group:</td>
<td>5h</td>
<td>4.00%</td>
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<tr>
<td></td>
<td>Hours small group:</td>
<td>5h</td>
<td>4.00%</td>
</tr>
<tr>
<td></td>
<td>Guided activities:</td>
<td>10h</td>
<td>8.00%</td>
</tr>
<tr>
<td></td>
<td>Self study:</td>
<td>90h</td>
<td>72.00%</td>
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### INTRODUCTION TO ENVIRONMENTAL NOISE

**Description:**

**Related activities:**
Measurement and analysis of environmental noise

**Specific objectives:**
Acquisition of principles and fundamental concepts of sound and its propagation.
Knowledge on the evaluation of discomfort caused by noise.

<table>
<thead>
<tr>
<th><strong>Learning time:</strong> 21h</th>
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</thead>
<tbody>
<tr>
<td>Theory classes: 2h</td>
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<tr>
<td>Practical classes: 2h</td>
</tr>
<tr>
<td>Laboratory classes: 1h</td>
</tr>
<tr>
<td>Guided activities: 1h</td>
</tr>
<tr>
<td>Self study: 15h</td>
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</tbody>
</table>

### ROOM ACOUSTIC

**Description:**
Norms of measurement of acoustic parameters of rooms. Regulations. Control of the reverberation according to the CTE DB-HR

**Related activities:**
Measurement of Reverberation time. Study of room acoustic

**Specific objectives:**
Analysis and determination of acoustic comfort of rooms. Solve potential problems

<table>
<thead>
<tr>
<th><strong>Learning time:</strong> 42h</th>
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</thead>
<tbody>
<tr>
<td>Theory classes: 5h</td>
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<tr>
<td>Practical classes: 4h</td>
</tr>
<tr>
<td>Laboratory classes: 1h</td>
</tr>
<tr>
<td>Guided activities: 2h</td>
</tr>
<tr>
<td>Self study: 30h</td>
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</tbody>
</table>
### Bibliography

**Basic:**