Course guide
310743 - 310743 - Architectural Lighting

Unit in charge: Barcelona School of Building Construction
Teaching unit: 748 - FIS - Department of Physics.
Degree: BACHELOR'S DEGREE IN ARCHITECTURAL TECHNOLOGY AND BUILDING CONSTRUCTION (Syllabus 2019). (Optional subject).
Academic year: 2022  ECTS Credits: 3.0  Languages: Spanish

LECTURER

Coordinating lecturer: Rodriguez Cantalapiedra, Inmaculada
Others: Vásquez Paredes, Rodrigo Antonio

TEACHING METHODOLOGY

Different learning methods will be combined:
- Theoretical classes
- Auto-learning
- Laboratory practice with DIALux Evo.
- Practical work with computer tools, individually or as a team with DIALux Evo.
- Carrying out an individual and / or team project.

LEARNING OBJECTIVES OF THE SUBJECT

Acquisition of the knowledge and techniques necessary for the measurement and evaluation of the lighting of an interior or exterior space of an architecture project or public space, for the optimization of the detected problems and the realization of a lighting project, with DIALux Evo.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self study</td>
<td>45,0</td>
<td>60.00</td>
</tr>
<tr>
<td>Hours large group</td>
<td>30,0</td>
<td>40.00</td>
</tr>
</tbody>
</table>

Total learning time: 75 h
## CONTENTS

### The beauty of light and vision

**Description:**
The beauty of light in architecture and public spaces, various case studies where you can see how these spaces are intervened through natural and artificial light.

**Related activities:**
Analysis of existing cases, visit to works and subsequent calculation with DIALux Evo of some of the case studies

**Full-or-part-time:** 2h
**Theory classes:** 2h

### Photometry and color

**Description:**
Light comfort: Adaptation, accommodation and visual acuity, contrast. Glare.

**Full-or-part-time:** 3h
**Theory classes:** 2h
**Practical classes:** 1h

### Light behavior of materials: reflected, absorbed and transmitted

**Description:**
Reflection, transmission and refraction. Polarization . Specular, diffuse and mixed reflection. Regular, diffuse and mixed transmission.

**Full-or-part-time:** 1h
**Theory classes:** 1h

### Interior lighting

**Description:**
Knowledge for good lighting: Location. Orientation, architectural data, activity data, lighting data that are required, color textures that influence reflection. Types of collection and distribution of natural light. Luminaries.
Natural lighting: solar radiation, daylight factor. Collection, distribution and protection elements.
Solar radiation according to location, seasonality, orientation. Collection elements: windows, skylights,... distribution: patios, galleries, tunnels of light. Daylight factor and its evaluation. Effect of the geometry of the premises, the depth. The location and shape of the collector. elements of control, protection and redistribution of natural light.

**Full-or-part-time:** 12h
**Theory classes:** 5h
**Practical classes:** 5h
**Laboratory classes:** 2h
Artificial lighting

Description:

Full-or-part-time: 5h
Theory classes: 1h
Laboratory classes: 4h

GRADING SYSTEM

Experimental Work
Individual or team work with DIALux Evo

BIBLIOGRAPHY

Basic:
- Código Técnico de la Edificación, Documento Básico HE 3 Condiciones de las instalaciones de iluminación. (2019).

RESOURCES

Computer material:
- DIALUX. Resource

Other resources:
Manual DIALux Evo  https://www.dial.de/fileadmin/documents/dialux/DIALux_downloads/DIALux%20evo%20manual.pdf  /Tutorials for Beginners  https://www.youtube.com/watch?v=O7YBu8y8Pso&list=PLKzUb7xP_t4_Yi3qIDWDy5oCZn1R_6z5z  /Open Channel  https://www.youtube.com/user/TheDIALux/videos