Course guide
310182 - 310182 - Pathological Processes and Diagnosis Methodology

Unit in charge: Barcelona School of Building Construction
Teaching unit: 753 - TA - Department of Architectural Technology.
Degree: MASTER’S DEGREE IN DIAGNOSIS AND INTERVENTION TECHNIQUES IN BUILDING CONSTRUCTION (Syllabus 2020). (Compulsory subject).

Academic year: 2022  ECTS Credits: 5.0  Languages: Catalan, Spanish

LECTURER

Coordinating lecturer: JUAN RAMON ROSELL AMIGÓ
Others: Navarro Ezquerra, Maria Antonia

REQUIREMENTS

Have completed an official degree in the fields of architecture, building or civil engineering

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE12MUDITI. To make decisions based on the analysis of the results.
CE8MUDITIE. To design a methodology guide to confront the knowledge and the diagnosis of a building ant its later rehabilitation.
CE10MUDITI. To acquire an evaluation methodology starting from observed or measured data and from the results of the analysis processes with numerical support.

Transversal:
CT3MUDITIE. (ENG) Treball en equip. Ser capaç de treballar com a membre d’un equip interdisciplinar, ja sigui com un membre més o realitzant tasques de direcció, amb la finalitat de contribuir a desenvolupar projectes amb pragmatisme i sentit de la responsabilitat, assumint compromisos, tenint en compte els recursos disponibles.

Basic:
CB6MUDITIE. To possess and comprehend the knowledge that provides a basis or opportunity of being original on the development and/or implementation of ideas, often in an investigation context.
CB7MUDITIE. For the students to know how to apply the knowledge acquired and their problem-solving capacity in new environments or slightly familiar, within wider contexts (or multidisciplinary) related to their area of study.
CB8MUDITIE. For the students to be able to integrate knowledge and face the complexity of making judgements based on some information which, being incomplete or limited, includes considerations about the social and ethical responsibilities linked to the application of their knowledge and judgement.
CB9MUDITIE. For the students to know how to communicate their conclusions and the knowledge and underlying reasons to a specialised and a non-specialised public on a clear and concise way.
CB10MUDITI. For the students to obtain learning skills that allows them to continue studying on a mainly autonomous and self-taught way.

TEACHING METHODOLOGY

Master lessons
Exercises and practices in the classroom and laboratory.
Autonomous learning from recommended reading
Case study
LEARNING OBJECTIVES OF THE SUBJECT

The subject provides the knowledge and skills necessary for the identification and assessment of the different pathological processes until reaching their etiology. Use and apply the different methodologies for the analysis of the symptoms and observed dysfunctions, the global behavior of the building over time and the results of the prospecting and other sources of information.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours large group</td>
<td>25.0</td>
<td>20.00</td>
</tr>
<tr>
<td>Hours small group</td>
<td>5.0</td>
<td>4.00</td>
</tr>
<tr>
<td>Hours medium group</td>
<td>5.0</td>
<td>4.00</td>
</tr>
<tr>
<td>Guided activities</td>
<td>10.0</td>
<td>8.00</td>
</tr>
<tr>
<td>Self study</td>
<td>80.0</td>
<td>64.00</td>
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**Total learning time:** 125 h

CONTENTS

**Module 1 General**

**Description:**
This module will develop the general and most recurrent themes of pathology. General topics of processes and nomenclature. Pathological processes linked to water (surface transport and porous network, dissolution and leaching, salts and crystallization, hygroscopicity, bio-habitat, erosion, oxidation-corrosion, ...) and the processes associated with stresses-deformations-breaks (of mechanical origin, thermodeminetic, induced stresses, elastic and permanent deformations, creep, ...).

**Full-or-part-time:** 10h 30m
Theory classes: 10h 30m

**Module 2 Materials**

**Description:**
This module will develop the specific topics of pathology and diagnosis (P&D) of some specific materials, with special relevance in those of the case study. P&D of stone and ceramic materials, as well as coatings. Wood P&D. P&D of reinforced concrete

**Full-or-part-time:** 10h 30m
Theory classes: 10h 30m

**Module 3 Construction systems**

**Description:**
This module will develop the specific topics of pathology and diagnosis of the main construction systems. P&D of floors-foundations, stone and ceramic factories, floors, arches and vaults, concrete structures, vertical and horizontal walls, etc.

**Full-or-part-time:** 15h
Theory classes: 15h
Module 4 Real case study

Description:
This module is considered transversal to the previous ones and basically develops the real case study from prospecting and sampling visits, and work in a workshop format.

Full-or-part-time: 9h
Theory classes: 9h

GRADING SYSTEM
To be defined