310640 - Terrestrial and UAV Photogrammetry

Coordinating unit: 310 - EPSEB - Barcelona School of Building Construction
Teaching unit: 751 - DECA - Department of Civil and Environmental Engineering
Academic year: 2018
Degree: BACHELOR'S DEGREE IN GEOPHYSICS AND GEOMINERALS ENGINEERING (Syllabus 2016). (Teaching unit Optional)
ECTS credits: 4.5
Teaching languages: Spanish

Teaching staff
Coordinator: FELIPE BUILL POZUELO

Degree competences to which the subject contributes

General:
5. Use of teams and instrumental: Capacity to select the necessary resources to the achievement of the planned goals according to the quality requirements. Use of the teams, in adequate conditions, with professional efficiency and taking into account the limitations of the instruments and its context of use, in relation with the required precisions.

Transversal:
1. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.
2. TEAMWORK - Level 1. Working in a team and making positive contributions once the aims and group and individual responsibilities have been defined. Reaching joint decisions on the strategy to be followed.
3. TEAMWORK - Level 2. Contributing to the consolidation of a team by planning targets and working efficiently to favor communication, task assignment and cohesion.
4. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.

Learning objectives of the subject

Study load

<table>
<thead>
<tr>
<th>Total learning time: 112h 30m</th>
<th>Hours large group:</th>
<th>18h</th>
<th>16.00%</th>
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<tbody>
<tr>
<td></td>
<td>Hours medium group:</td>
<td>27h</td>
<td>24.00%</td>
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<tr>
<td></td>
<td>Hours small group:</td>
<td>0h</td>
<td>0.00%</td>
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<td></td>
<td>Guided activities:</td>
<td>0h</td>
<td>0.00%</td>
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<td></td>
<td>Self study:</td>
<td>67h 30m</td>
<td>60.00%</td>
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### Content

<table>
<thead>
<tr>
<th>Section</th>
<th>Learning time</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>INTRODUCTION. NON-CARTOGRAPHIC PHOTOGRAMMETRY</strong></td>
<td><strong>18h</strong></td>
<td><strong>Description:</strong> [ENG] Introducción al caso fotogramétrico terrestre. Aplicación en levantamientos arquitectónicos y arqueológicos. Casos especiales</td>
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<tr>
<td><strong>(ENG) FUNDAMENTOS GEOMÉTRICOS</strong></td>
<td><strong>15h</strong></td>
<td><strong>Description:</strong> [ENG] Fundamentos geométricos de la fotografía. Características principales de la fotogrametría denominada terrestre o no topográfica. Coberturas fotográficas</td>
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<tr>
<td><strong>(ENG) INSTRUMENTOS</strong></td>
<td><strong>5h</strong></td>
<td><strong>Description:</strong> [ENG] Instrumentación utilizada en los diferentes métodos fotogramétricos terrestres</td>
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<tr>
<td><strong>[ENG] FOTOGRAFÍA CON UAV</strong></td>
<td><strong>4h</strong></td>
<td><strong>Description:</strong> [ENG] Aplicación de sistemas UAV (Unmanned Aerial Vehicle) para la captura de fotografías con fines fotogramétricos. Aplicación en levantamientos arqueológicos, ingeniería civil, geología...</td>
</tr>
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</table>
Planning of activities

[ENG] Proyecto fotogramétrico

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<tr>
<th>Hours: 13h</th>
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<tr>
<td>Practical classes: 3h</td>
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<tr>
<td>Self study: 10h</td>
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**Description:**
[ENG] Levantamiento por fotogrametría terrestre de un pequeño elemento patrimonial a gran escala

**Support materials:**
[ENG] Práctica a efectuar en el laboratorio. Fichero con información en el campus virtual (ATENEA)

**Descriptions of the assignments due and their relation to the assessment:**
[ENG] Memoria de la práctica. Modelo 3D. Plantas, alzados y secciones

Qualification system

The final qualification is the addition of the following partial qualification:

Class activities: 30%
Memory of the final project 50%
Defense of the final project 20%

Final project: Doing a photogrametric project related with the arquitectonic and/or archeologic surveying (associated concepts to the goals of learning of the subject). It will be delivered a memory of all the projects and drawings of detail. It will be carried out an oral exposition of the developed topic.
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Regulations for carrying out activities

It is mandatory to do all the practices in order to have an average mark

Bibliography

Basic:


Complementary: