

## 30749 - Graphical Representation of Heritage

### Información del Plan Docente

<b>Academic Year</b>	2018/19
<b>Subject</b>	30749 - Graphical Representation of Heritage
<b>Faculty / School</b>	110 - Escuela de Ingeniería y Arquitectura
<b>Degree</b>	470 - Bachelor's Degree in Architecture Studies
<b>ECTS</b>	6.0
<b>Year</b>	5
<b>Semester</b>	Second semester
<b>Subject Type</b>	Optional
<b>Module</b>	---

### **1.General information**

#### **1.1.Aims of the course**

#### **1.2.Context and importance of this course in the degree**

#### **1.3.Recommendations to take this course**

### **2.Learning goals**

#### **2.1.Competences**

#### **2.2.Learning goals**

#### **2.3.Importance of learning goals**

### **3.Assessment (1st and 2nd call)**

#### **3.1.Assessment tasks (description of tasks, marking system and assessment criteria)**

### **4.Methodology, learning tasks, syllabus and resources**

#### **4.1.Methodological overview**

The subject of the course is eminently practice, so that the activities proposed, the teaching hours (primarily workshop hours), both out of them are practical.

It is attached to the start of the semester, the calendar of activities. Activities that relate to the analysis of urban public spaces, or buildings may be substituted for other locations or similar buildings, according to the needs of the course or other external factors, as permissions, availability in external practices, etc.

**4.2.Learning tasks**

-Introduction to photogrammetry. Digital acquisition of images. Camera model and calibration. Stereo vision.

-Set photogrammetric

-Reconstruction and measurement; analysis of precision. Dense reconstruction, visual scanner-points of control and measuring with a photo. Taking data and practical rules-mix of real and virtual objects

-Notions of measuring, drawing and representation,

-Strategies for a photogrammetric survey.

-Practices directed at the laboratory of photogrammetry, from data.

-Field practices, capturing the natural.

-Data practices of restitution, export and, where necessary, intervention in the digital models from data taken by the students themselves.

**4.3.Syllabus**

The program of the course:

Image acquisition,

Photogrammetric reconstruction. Scale-up, referenced, and measured.

Basic reconstruction.

Camera calibration model.

Epipolar geometry.

Advanced reconstruction.

Photogrammetric reconstruction.

Analysis of precision.

Table of points and precision handling.

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Geometric constraints.

Reconstruction with a view. Automatic pairing of images.

Targets. Calibracion.

Fotogrametria and laser scanner.

Creation of a cloud of points from photographs.

Photographic, processed pictures.

Topographic measurements, processing of photographs and measurements.

Integration of models photogrammetric in 3D environments.

### 4.4.Course planning and calendar

It facilitates in the first session of class and detail explains the development of each class, placing it in the Moodle of the subject for future reference or for students who cannot attend class.

The standard for this type of project development: the use of a laptop is recommended, camera and photogrammetric software.

### 4.5.Bibliography and recommended resources

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- Buill, F., Núñez, M.A. Fotogrametría Arquitectónica / Buill, F., Núñez, M.A. Ediciones UPC, 2007
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  - Schenk, Toni F.. Fotogrametría digital. Vol. 1, Antecedentes, fundamentos , procedimientos automáticos de orientación / Toni Schenk ; [traducido por Isaura E. Alonso Martínez y Francisco García Cepeda] . Barcelona : Marcombo [etc.] , 2002