

Course guide 210292 - DAIIP - Documentation, Analysis and Interpretation of the Architectural Heritage: Architectural Surveying Techniques

Last modified: 16/02/2024

Unit in charge: Teaching unit:	Barcelona School of Architecture 752 - RA - Departamento de Representación Arquitectónica. 753 - TA - Department of Architectural Technology. 756 - THATC - Department of History and Theory of Architecture and Communication Techniques.	
Degree:	DEGREE IN ARCHITECTURE STUDIES (Syllabus 2014). (Optional subject).	
Academic year: 2023	ECTS Credits: 3.0	Languages: Catalan, Spanish

LECTURER

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Coordinating lecturer:

GALDRIC SANTANA ROMA

Others:

Segon quadrimestre: GALDRIC SANTANA ROMA - Grup: 2SM

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

EAB1. Translation from Spanish slope EAB11. Translation from Spanish slope EAB2. Translation from Spanish slope EAB3. Translation from Spanish slope EAB5. Translation from Spanish slope EAB6. Translation from Spanish slope EP11. Translation from Spanish slope EP12. Translation from Spanish slope EP13. Translation from Spanish slope EP15. Translation from Spanish slope EP20. Translation from Spanish slope EP21. Translation from Spanish slope EP22. Translation from Spanish slope EP23. Translation from Spanish slope EP26. Translation from Spanish slope EP3. Translation from Spanish slope EP4. Translation from Spanish slope EP8. Translation from Spanish slope ET10. Translation from Spanish slope ET14. Translation from Spanish slope ET17. Translation from Spanish slope ET3. Translation from Spanish slope ET4. Translation from Spanish slope ET5. Translation from Spanish slope

Generical:

CG1. Translation from Spanish slope CG2. Translation from Spanish slope CG4. Translation from Spanish slope



Transversal:

- CT3. Translation from Spanish slope
- CT4. Translation from Spanish slope
- CT5. Translation from Spanish slope
- CT6. Translation from Spanish slope

TEACHING METHODOLOGY

LEARNING OBJECTIVES OF THE SUBJECT

Know, practice and apply current techniques for metric survey: static and dynamic photogrammetry (dense stereo matching); 3D Laser-scanner.

Work on photometric restitution for surveys of the disappeared heritage, documented in historical photography. Determine a post-production based on the documentary intention of the heritage (diagnostic, forensic, illustrative) Reach an interpretive result of the heritage (analysis of results, visual, acoustic, geometric, historical, etc ...)

STUDY LOAD

Туре	Hours	Percentage
Hours large group	33,0	44.00
Self study	42,0	56.00

Total learning time: 75 h



CONTENTS

Line of intervention in the heritage. Surveying techniques, documentation and analysis

Description:

It is about knowing, practicing and applying current survey techniques: static and dynamic photogrammetry (dense stereo matching); Laser scanner. Likewise, photometric restitution is being worked on for surveys of the disappeared heritage, documented in historical photography. The application of these techniques is executed and post-produced according to the documentary, diagnostic, forensic, illustrative intention, reaching an interpretive purpose of the heritage, that is, an analysis of results, visual, acoustic, geometric, historical, etc. ..

The practice of the subject is based on and complemented by the presentation of professional assignments of the responsible teacher, (active and completed) executed mainly in Gaudí's architectural work.

Metro-PHOTO RESTITUTION:

It is a traditional application of Descriptive Geometry (Architectural Geometry). It becomes the origin of the Photogrammetry technique. It is for this reason, that also from the didactic point of view, their basic knowledge is adequate. It is a fundamental technique in the context of heritage, since it allows metrically to restore images of disappeared architecture. COMBINED RESTITUTION:

It is the work of metro-photographic restitution, combined with photogrammetry or LIDAR scanning, in a virtual 3D modeling environment. Its application becomes optimal in a combined context between existing and missing heritage. DIGITAL PHOTOGRAMMETRY:

Technique that has evolved on a large scale with respect to the traditional technique as a consequence of the digital capture of images, and the possibility of managing the data of large sets of photographs that current sensors allow. Its application is essential in the survey of architectural heritage, and its elements.

High resolution digital photogrammetry (Gigaphotogrammetry) allows the documentation of macroscopic detail. Its origins are the documentation of pictorial art, to distinguish and recognize the originals with respect to the copies. SCANNER-LASER:

The use of LIDAR technology, allows exhaustive obtaining of points, in a great scope. However, its effectiveness implies devices with a high economic cost. However, knowledge and experience with this type of media are necessary, and thus it is arranged in this course to carry out at least one capture and post-production practice.

ANALYSIS and INTERPRETATION:

The lifting techniques exposed and treated in the course, beyond their capacity and documentary adequacy, are developed through the presentation of real orders, which go beyond the strict documentation, becoming examples of analysis and interpretation of the heritage object.

Full-or-part-time: 3h

Theory classes: 1h Practical classes: 1h Guided activities: 1h



GRADING SYSTEM

EVALUATION SYSTEM

Continuous assessment

Continuous assessment will be based on the work carried out by the student during the academic year, through the submission of assignments or the performance of written and/or oral tests, according to the criteria and timetable established. Final assessment

If the continuous assessment is not positive, a second assessment may be carried out, which will consist of a final overall test in the established methodology according to the criteria of the lecturer in charge (written or oral test and/or submission of assignments).

Telematic continuous assessment

In online teaching situations, continuous assessment will be carried out synchronously and asynchronously, by the methods established by the University and the School, with a periodic record of academic activity by submitting assignments, forums, questionnaires or any other means provided by the Atenea platform, or the alternative tools provided to the teaching staff. In situations in which this telematic teaching takes place when faceâ□toâ□face teaching has already begun, or for nonâ□academic reasons, any alterations to the weightings or regular teaching control systems will be communicated in detail to all students on the Atenea platform for every subject.

Final telematic assessment

If the continuous telematic assessment is not positive, a second assessment may be carried out consisting of a final overall test in telematic format to be established in accordance with the criteria of the lecturers in charge and the ICT resources and tools provided by the University or the School.

The measures for adapting to distance teaching will be implemented in accordance with ICT security and personal data protection criteria to ensure compliance as regards Personal Data Protection legislation (RGPD and LOPDGDD).

BIBLIOGRAPHY

Basic:

- Buill, Felipe ; Núñez, M. Amparo ; Rodríguez, Juan J.. Fotogrametria arquitectónica [on line]. Barcelona: Edicions UPC, 2007 [Consultation: 12/07/2021]. Available on: http://hdl.handle.net/2099.3/36829. ISBN 9788483019207.

- Hohenberg, Fritz. Geometria constructiva aplicada a la técnica. 1a. Barcelona[etc.]: Labor, 1965.

- Schenk, Toni. Fotogrametría Digital. 1a. Barcelona: Marcombo, cop. 2002. ISBN 9788426713315.

- González-Varas Ibáñez, Ignacio. Conservación del patrimonio cultural, Teoria, historia principios y normas. Segunda edición revisada, ampliada y actualizada. Madrid: Ediciones Cátedra, 2018. ISBN 9788437639215.

RESOURCES

Other resources:

The materials and documents of the subject may be written indistinctly in any languages of instruction.