

Course guide

310636 - 310636 - Geomatics Projects

Last modified: 25/06/2025

Unit in charge: Barcelona School of Building Construction
Teaching unit: 751 - DECA - Department of Civil and Environmental Engineering.

Degree: BACHELOR'S DEGREE IN GEOINFORMATION AND GEOMATICS ENGINEERING (Syllabus 2016).
(Compulsory subject).

Academic year: 2025 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: Rogelio López Bravo

Others: YEUDI FELIPE VARGAS
GLORIA BERGA RODA
SATURIO DELGADO MEDINA

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Generical:

CG10EGG. Plannification, project, direction, execution and mangement of processes and products of application in the environment, agronomy, forest and miner engineering inside the geomatic field

CG4EGG. Capacity to take decisions, leadership, management of human ressources and direction of interdisciplinary teams related with the special information.

CG1EGG. Design and developpe geomatic and topographic projects.

Transversal:

CT4. EFFECTIVE USE OF INFORMATION RESOURCES: Managing the acquisition, structuring, analysis and display of data and information in the chosen area of specialisation and critically assessing the results obtained.

CT3. TEAMWORK: Being able to work in an interdisciplinary team, whether as a member or as a leader, with the aim of contributing to projects pragmatically and responsibly and making commitments in view of the resources that are available.

Basic:

CB3EGG. The students must have the capacity to gather and interpret relevan data (normally inside the field of study) to emet judgements that include a reflexion into relevant social, cientific or ethic contents.

TEACHING METHODOLOGY

Expository method for blocks 1 and 2, but with a clear orientation of participatory expository class incorporating spaces for student participation and intervention.

Short-term classroom activities will be used, such as direct questions and dialogue with students on the topics presented.

For blocks 3 and 4, a case study methodology is proposed, since it will preferably start with visits to or professionals specialized in the different fields of Geomatics.

LEARNING OBJECTIVES OF THE SUBJECT

At the end of the subject the student must be capable of:

- Know the necessary documents for the elaboration of a project.
- Know the multidisciplinary applications of geomatics.
- Know the planning techniques.
- Manage a project of geomatic engineering.

STUDY LOAD

Type	Hours	Percentage
Self study	90,0	60.00
Hours large group	24,0	16.00
Hours medium group	36,0	24.00

Total learning time: 150 h

CONTENTS

1. Projects

Description:

-The project:

Definition and purpose. Documents and Projects. Reports, opinions and expert opinions. Types of projects: Professional projects, Academic projects and Research projects.

-Phases of a construction project:

Viability study. Existence and satisfaction of need. Preliminary projects. Acquisition of information.

-Project documents:

Report, Annexes to the report, Budget, Specification, Plans.

Related activities:

Activity 1. Documentary analysis of projects.

Full-or-part-time: 40h

Theory classes: 15h

Self study : 25h

2. Projects management

Description:

-Planning:

Entities involved in a project. Planning and control tools. Planning and monitoring techniques.. PERT method.

-Contracts:

Types of contract: Execution of works, Management of public services, Supplies and Consulting and assistance. Contracts with public administrations. Tenders.

-Quality:

Standardization. Quality Management Systems. Instrument calibration.

-Cost analysis.

Related activities:

Activity 2. Public tenders.

Full-or-part-time: 40h

Theory classes: 15h

Self study : 25h

3. Business organization

Description:

- Organization in public administrations. (Municipality, Provincial Council, CCAA, State).
- Organization in construction companies.
- Organization in a private company.
- Professional Colleges and Associations. Accreditations.

Related activities:

Activity 4. Report visits from or to specialized professionals.

Full-or-part-time: 23h

Practical classes: 8h

Self study : 15h

4. Projects and multidisciplinary applications in geomatic engineering.

Description:

- Mapping
- Photogrammetry
- Geometric Control (Infrastructures, industry, cartography)
- Geodetic networks
- BIM
- GIS
- Teledetection

Related activities:

Activi 4. Reprot visits from or to specialized professionals.

Full-or-part-time: 47h

Practical classes: 22h

Self study : 25h

GRADING SYSTEM

Partial exam 1 of the contents of blocks 1 and 2: 25%

Partial exam 2 of the contents of blocks 3 and 4: 25%

Delivery of activity reports: 40%

Active class participation: 10%

There will be a re-evaluation exam

BIBLIOGRAPHY

Basic:

- Chueca Pazos, Manuel; Herráez Boquera, José; Berné Valero, José Luis. Tratado de topografía. Madrid: Paraninfo, 1996. ISBN 8428323089.
- Omachonu, Vincent K; Ross, Joel E. Principles of total quality. 3rd ed. Boca Raton, Fla.: St. Lucie Press, 2004. ISBN 1574443267.
- González Fernández de Valderrama, Fernando; Sáinz Avia, Jorge; García Erviti, Federico. Mediciones y presupuestos : para arquitectos e ingenieros de edificación [on line]. 2a ed., act. y ampl. Barcelona: Reverté, 2010 [Consultation: 30/07/2024]. Available on: https://discovery.upc.edu/permalink/34CSUC_UPC/rdgucl/alma991003877079706711. ISBN 9788429132014.
- Chueca Pazos, Manuel; Herráez Boquera, José; Berné Valero, José Luis. Tratado de topografía. Madrid: Paraninfo, 1996. ISBN 8428323089.

Complementary:

- Guías de orientación para la aplicación de las normas ISO 9000:2000.. Madrid: Aenor, 2001.



RESOURCES

Hyperlink:

- <https://contractacio.gencat.cat/ca/inici>. Public tender portal Generalitat de Catalunya
- <https://contrataciondelestado.es>. State public tender platform