

Course guide

310628 - 310628 - Surveying in Civil Engineering

Last modified: 27/01/2025

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: 2024	ECTS Credits: 6.0	Languages: Spanish

LECTURER

Coordinating lecturer:	Rogelio López Bravo
Others:	Gloria Berga

PRIOR SKILLS

Have taken the subjects of " Topographic instruments and methods " and " Design, observation and adjustment of networks "

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

5. (ENG) Planificació, projecte, direcció, execució i gestió de processos de mesura, sistemes d'informació, explotació d'imatges, posicionament i navegació; modelització, representació i visualització de la informació territorial en, sota i sobre la superfície terrestre.
4. (ENG) Comprendre i analitzar els problemes de implantació en el terreny de les infraestructures, construccions i edificacions projectades des de l'enginyeria en topografia, analitzar els mateixos i procedir a la seva implantació.
7. Knowledge about security, health and labour risks inside the scope of this engineering and its application and development.
6. Knowledge about application of the geomatic methods and techniques in the the scope of the different enginneries.

Transversal:

1. SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.
2. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 2. Applying sustainability criteria and professional codes of conduct in the design and assessment of technological solutions.
3. EFFECTIVE USE OF INFORMATION RESOURCES - Level 2. Designing and executing a good strategy for advanced searches using specialized information resources, once the various parts of an academic document have been identified and bibliographical references provided. Choosing suitable information based on its relevance and quality.

TEACHING METHODOLOGY

Expository method in theoretical content topics.
Expository-participatory class in most subjects.
problem sessions. Problem solving and exercises
Subject based on classroom practice.
The examples seek the closest possible approximation to reality.
It works in small groups.
Attendance is considered essential for the correct acquisition of the expected skills.

LEARNING OBJECTIVES OF THE SUBJECT

- Definition of geometry, in planimetry and altimetry, of projects about linear sketches and infrastructures.
- Application of the topography in the different specialties of engineering. The surveying and metric control in projects of architecture and engineering.
- Measurements and cubage techniques.
- Safety, health and labour risks in the professional environment of geomatics.

STUDY LOAD

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

Total learning time: 150 h

CONTENTS

Surveying concept

Description:

It is the materialization in space, in an appropriate and unequivocal way, of the basic points that graphically define a project.

Full-or-part-time: 1h

Theory classes: 1h

Geometric fittings

Description:

In most cases, these are simple problems that use elementary geometry for their resolution.

Related activities:

Classroom practices

Full-or-part-time: 21h

Theory classes: 1h

Practical classes: 7h

Self study : 13h

Surveying methods

Description:

Surveying methods for polars, by intersection and by horizontals and verticals

Related activities:

Field practice

Full-or-part-time: 7h

Theory classes: 1h

Laboratory classes: 2h

Self study : 4h

Alineation definition in floor plan

Description:

Straights, circles and transition alineations.

Related activities:

Practices in class

Field practices

Full-or-part-time: 33h

Theory classes: 3h

Practical classes: 8h

Laboratory classes: 2h

Self study : 20h

Alineation definitions in elevation

Description:

Vertical deals. Intersections and fitting.

Longitudinal profiles

Related activities:

Practices in class

Full-or-part-time: 10h

Theory classes: 2h

Practical classes: 2h

Self study : 6h

Definition of the transverse section

Description:

Transversal profiles.

The cross-section. Elements and conditioning factors,

Normative aspects.

Its relation with the longitudinal plan and elevation.

Related activities:

Practices in class

Full-or-part-time: 50h

Theory classes: 3h

Practical classes: 17h

Self study : 30h

Measurements and cubage

Description:

Measurement of longitudinal elements.
Measurements of surfaces and volumes.
Resgulation aspects.

Related activities:

Practices in class

Full-or-part-time: 28h

Theory classes: 2h

Practical classes: 9h

Self study : 17h

GRADING SYSTEM

Control 1 40%

Control 2 40%

Problem Workshop 1 and 2 10%

Practices 10%

Assessment of deliveries.

Attendance will be valued for the final grade.

EXAMINATION RULES.

It is mandatory to have submitted the problems and practice reports. The previous qualification have to be more than 3.5

BIBLIOGRAPHY

Basic:

- Corral Manuel de Villena, Ignacio de. Topografía de obras [on line]. Barcelona: Edicions UPC, 2001 [Consultation: 06/05/2020]. Available on: <http://hdl.handle.net/2117/105482>. ISBN 84-8301-543-9.

- Trazado : instrucción de carreteras. Norma 3.1-IC [on line]. Madrid: Ministerio de Fomento, Centro de Publicaciones, 2016 [Consultation: 06/05/2020]. Available on: https://www.mitma.gob.es/recursos_mfom/norma_31ic_trazado_orden_fom_273_2016.pdf.

- Piquer Chanzá, José S. El Proyecto en ingeniería y arquitectura : estudio, planificación, desarrollo. 3ª ed. Barcelona: CEAC, 1990. ISBN 8432920061.

RESOURCES

Audiovisual material:

- Nombre recurso. Resource