

Course guide

2500024 - GECGESCONS - Construction Management

Last modified: 01/10/2021

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

Degree: BACHELOR'S DEGREE IN CIVIL ENGINEERING (Syllabus 2020). (Compulsory subject).

Academic year: 2021 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish, English

LECTURER

Coordinating lecturer: JOSE TURMO CODERQUE

Others: JOSE TURMO CODERQUE, MANUEL VALDES LOPEZ

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

14406. Ability to analyze the problem of safety and health in construction sites. (Common module to the Civil branch)

14409. Knowledge of construction procedures, construction machinery and techniques of organization, measurement and evaluation of works. (Common module to the Civil branch)

14415. Ability to apply construction procedures, construction machinery and construction planning techniques. (Specific technology module: Civil Construction)

Generical:

14380. Scientific-technical training for the exercise of the profession of Technical Engineer of Public Works and knowledge of the functions of advice, analysis, design, calculation, project, construction, maintenance, conservation and exploitation.

14381. Understanding of the multiple technical and legal conditions that arise in the construction of a public work, and ability to use proven methods and accredited technologies, in order to achieve the highest efficiency in construction while respecting the environment and the protection of the health and safety of workers and users of public works.

14382. Knowledge, understanding and ability to apply the necessary legislation during the exercise of the profession of Technical Engineer of Public Works.

14383. Ability to project, inspect and direct works, in their field.

14388. Knowledge and ability to apply business management techniques and labor legislation.

14389. Knowledge of the history of civil engineering and training to analyze and assess public works in particular and construction in general.

14390. Identify, formulate and solve engineering problems. Pose and solve construction engineering problems with initiative, decision-making skills and creativity. Develop a systematic and creative method of analysis and problem solving. (Additional school competition).

14391. Conceive, project, manage and maintain systems in the field of construction engineering. Cover the entire life cycle of an infrastructure or system or service in the field of construction engineering. (Additional school competition).

TEACHING METHODOLOGY

The course consists of 2 hours per week of classroom activity (large size group) and 2 hours weekly with half the students (medium size group).

The 2 hours in the large size groups are devoted to theoretical lectures, in which the teacher presents the basic concepts and topics of the subject, shows examples and solves exercises.

The 2 hours in the medium size groups is devoted to solving practical problems with greater interaction with the students. The objective of these practical exercises is to consolidate the general and specific learning objectives.

Support material in the form of a detailed teaching plan is provided using the virtual campus ATENEA: content, program of learning and assessment activities conducted and literature.

LEARNING OBJECTIVES OF THE SUBJECT

Constituent Elements of civil works. Life cycle in public works. Knowledge of the organisation and planning of works, including legislation, prevention, safety and health, environment, economic control and construction quality systems. Construction Agents. Documents of a project. Tenders. Development of the contract. Planning. Basic equipment. Application to linear infrastructures.

- 1 Ability to conduct a study of alternatives.
- 2 Ability to perform a formal design of an infrastructure in Civil Engineering.
- 3 Ability to perform a comprehensive management analysis of a project.

Knowledge of the construction techniques applied to public works. Constitutive elements civil works. Analysis and evaluation criteria. Assessment of public works. Knowledge of organization and planning of works, including prevention, safety and health and quality systems in construction. Knowledge of Public Works. Documents of a project. Classification of the works contractor. Review of prices. Assessment of Works and Projects. Total budget. Price breakdown. Lump Sum. Structure of a Budget. Computer tools for creating a budget. Structuring a budget in chapters and subchapters. Quantities: Explanations, drainage networks, pavements and pavements, structures. Foundations, reinforced and prestressed concrete, cutting, structural steel. Urban elements and finishes. Railway, urban and tunnel works. General aspects of project and works planning. Computer tool for creating a works program.

STUDY LOAD

Type	Hours	Percentage
Self study	84,0	56.00
Hours medium group	30,0	20.00
Guided activities	6,0	4.00
Hours large group	30,0	20.00

Total learning time: 150 h

CONTENTS

The project and the work site

Description:

Legislation applicable to public works
Safety and health, Quality and Environment in the work
Resolution of practical cases
Analysis of a real construction project

Specific objectives:

Knowledge of the legislation applicable to works
Knowledge of the application of Health and Safety, Quality and Environment in the work
Application of the concepts of legislation to the resolution of practical cases
Apply the knowledge acquired in the subject

Full-or-part-time: 86h 24m

Theory classes: 12h
Practical classes: 24h
Self study : 50h 24m

Planning

Description:

Technical planning
Economic planning

Specific objectives:

Know how to plan a work technically
Financially plan a work

Full-or-part-time: 14h 23m

Practical classes: 6h
Self study : 8h 23m

Construction

Description:

Construction of linear works
Construction of urban works

Specific objectives:

Know the construction methods and machinery of linear works
Understand the methods, constraints and machinery to build urban works

Full-or-part-time: 43h 12m

Theory classes: 18h
Self study : 25h 12m

GRADING SYSTEM

The mark of the course is obtained from the ratings of continuous assessment and their corresponding laboratories and/or classroom computers.

Continuous assessment consist in several activities, both individually and in group, of additive and training characteristics, carried out during the year (both in and out of the classroom).

The teachings of the laboratory grade is the average in such activities.

The evaluation tests consist of a part with questions about concepts associated with the learning objectives of the course with regard to knowledge or understanding, and a part with a set of application exercises.

BIBLIOGRAPHY

Basic:

- Neale, R.H.; Neale, D.E; Stephenson, P. Construction planning. 2nd ed. London: ICE Publishing, 2016. ISBN 9780727760579.
- Peurifoy ... [et al.]. Construction planning, equipment, and methods. 8th. New York: McGraw Hill, 2011. ISBN 0071289518.
- Morilla Abad, I. Guía metodológica y práctica para la realización de proyectos. 3a ed. Madrid: Colegio de Ingenieros de Caminos, Canales y Puertos, 2001. ISBN 8438001955.
- Cañizal, F. La Redacción del proyecto: aspectos previos y metodología. 1998. Universidad de Cantabria, 1998. ISBN 8489627436.
- Martínez Montes, G.; Pellicer Armiñana, E. Organización y gestión de proyectos y obras. Madrid: McGraw-Hill, 2007. ISBN 9788448156411.