

Course guide

2500008 - GECELEGCON - Business and Construction Legislation

Last modified: 20/06/2024

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: 2024	ECTS Credits: 6.0	Languages: Catalan, English	

LECTURER

Coordinating lecturer:	ÁLVARO GAROLA CRESPO
Others:	BERNAT ARIAS SEGUI, ÁLVARO GAROLA CRESPO, SERGI SAURI MARCHAN, GEMA VELEZ SABATER

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:

14397. Adequate knowledge of the company concept, institutional and legal framework of the company. Organization and business management. (Basic training module)

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.

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

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

TEACHING METHODOLOGY

The subject consists of 4 hours a week of face-to-face classes in the classroom.

They dedicate to theoretical classes 2 hours, in which the profesorado exposes the concepts and basic materials of the matter, presents examples and realizes exercises.

They spend 2 hours, solving problems and carrying out practical cases with greater interaction with students. .

2-hour-a-week workshops will be proposed to review the topics worked on in the classroom. Practical exercises will be carried out in order to consolidate the general and specific learning objectives. Preferably, real, close and current cases related to the economic vision of the infrastructures will be worked with the aim that the students become involved in their resolution.

Support material is used in the format of a detailed teaching plan through the ATENEA virtual campus: contents, programming of assessment and guided learning activities and bibliography.

The language of learning in groups 10 and 20 will be in Catalan, and in the English group in English. In the event that a conference is organized or that a guest lecturer gives a one-off session, it will be in the speaker's language.

Although most of the sessions will be given in the language indicated, sessions supported by other occasional guest experts may be held in other languages.

LEARNING OBJECTIVES OF THE SUBJECT

Adequate knowledge of the business concept, institutional and legal framework of the company. Company organization and Management. Knowledge of economics, business, and different typologies. Characteristics of construction companies. Accounting. Infrastructure financing. Investments in infrastructures. Economic analysis of environmental impacts. Legislation on public procurement and concessions.

- 1 Ability to conduct an economic feasibility study for investment in the construction of an infrastructure.
- 2 Ability to perform an economic operation analysis of a construction firm.
- 3 Ability to conduct a study of economic profitability of operation, maintenance and conservation of an infrastructure.

Adequate knowledge of the concept of company, institutional and legal framework of the company. Organization and company management. Knowledge of economics including analysis of productive activity, the law of supply and demand, production and income. Knowledge of monetary and financial economy both nationally and internationally. Knowledge of market economy, growth models, productive economy. Knowledge of regional economy and the role of infrastructure. Knowledge of environmental economics and its management. Company knowledge including types of companies, authority in the company, management, administration and organization. Knowledge of the company's resources, financing, investments, transferable securities. Knowledge of production, supply and demand, promotion and distribution, remuneration for work. Infrastructure financing. Public and private sources. Public sector as an economic agent. Economic impact of infrastructure. Methods of analysis.

Concept of financial profitability. Infrastructure investment viability plans. Investment concept. Phases of the project. Factors that condition the return on an investment from an economic and financial point of view. Define the financial criteria that define the viability of a project such as IRR and NPV.

Investment selection criteria. Introduction to cost-benefit analysis methodology.

Economic analysis of environmental impacts. Concept of externality and its measurement.

Legislation on public procurement. Work award criteria. Legislation on public works concessions.

- 1 Ability to conduct an economic feasibility study for investment in the construction of an infrastructure.
- 2 Ability to perform an analysis of the economic operation of a construction company.
- 3 Ability to analyze the impact of infrastructures.
4. Understand the concept of efficiency applied to business, infrastructure and construction.
- 5.Ability to understand the concession model and the legislation that regulates it.

Adequate knowledge of the concept of company, institutional and legal framework of the company. Business organization and management. Knowledge of economics including analysis of productive activity, the law of supply and demand, production and income. Knowledge of monetary and financial economics both nationally and internationally. Knowledge of market economy, growth models, productive economy. Knowledge of regional economy and the role of infrastructure. Knowledge of the economy of the environment and its management. Company knowledge including type of companies, authority in the company, management, administration and organization. Knowledge of company resources, financing, investments, securities. Knowledge of production, supply and demand, promotion and distribution, remuneration for work. Infrastructure financing. Public and private sources. Public sector as an economic agent. Economic impact of infrastructures. Methods of analysis.

Concept of financial profitability. Feasibility plans for infrastructure investments.

STUDY LOAD

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

Total learning time: 150 h

CONTENTS

Introduction to economics and fundamentals of microeconomics

Description:

Concept of economy. Basic principles that govern economic thinking. Basis of economic analysis
Basic microeconomic concepts. Supply and demand, Types of goods. Concept of elasticity and its effects. Consumer surplus.
Utility functions. Cost theory.

Specific objectives:

Understand the basic elements of economic analysis and its application to the world of construction and civil engineering
Understand the fundamentals of microeconomics and its application to civil engineering and construction. Introduce the concept of efficiency

Full-or-part-time: 16h

Theory classes: 4h

Practical classes: 4h

Self study : 8h

Economy of the construction sector

Description:

Definition of the construction and public works sector. Characteristics of the sector. Economic cycles of construction. Recent evolution in Spain and internationally.

Specific objectives:

Understand the particularities of construction as a productive sector. Know the recent evolution of the sector and its perspectives

Full-or-part-time: 16h

Theory classes: 4h

Practical classes: 4h

Self study : 8h

Business economics

Description:

Concept of company, and the various types. Type of company, limited and limited liability, concept of share capital. Basic elements of business management. Corporate Social Responsibility. Characteristics and particularities of construction companies.

Specific objectives:

Understand the different types of companies Introduce the concept of economic responsibility of the company Introduce the concept of social responsibility Particularities of construction companies

Full-or-part-time: 24h

Theory classes: 6h

Practical classes: 6h

Self study : 12h

Introduction to Accounting

Description:

Introduce the concept of accounting as an element of business analysis. Balance sheet account, profit and loss account.

Carrying out accounting exercises. Heritage vision, versus results vision

Main ratios to interpret the situation of a company. Application of business ratios to construction works and infrastructures.

Profitability, solvency, liquidity. Cash flows and accounting.

Practical cases of interpretation of business ratios. Exercises on cash flows.

Specific objectives:

Understand that accounting is the way to analyze a company financially. Understand the accounting accounts

Learn to interpret the accounts of a company Assess the economic operation of a company

Understand the ratios that allow you to analyze the behavior of a company Identify the differences between the accounting view and cash flows

Practice compatible techniques Interpret and compare business results

Full-or-part-time: 30h

Theory classes: 9h

Practical classes: 7h

Self study : 14h

Infrastructure economics

Description:

Sources of infrastructure financing. Public funding: classical method, shadow toll, right of use. Taxes as investment financiers.

Financing with urban operations. Private financing. Payment by the user. Infrastructure prices as regulators of demand. Effects on equity.

Investment concept. Phases of the project. Factors that condition the return on an investment from an economic and financial point of view. Define the financial criteria that define the viability of a project such as the IRR and the NPV. Sources of funding

Recent and real cases of investment projects in the infrastructure sector. Calculate its viability

Specific objectives:

Understand ways to finance infrastructure Discuss the role of the public sector and the private sector in infrastructure

Understand the concepts of return on investment Learn the tools to assess their viability Discuss the various ways to obtain resources

That students draw up an Economic and Financial Plan based on real cases. Assess the elements that make an infrastructure profitable Discuss why certain investment actions are carried out

Full-or-part-time: 12h

Theory classes: 3h

Practical classes: 3h

Self study : 6h

Macroeconomic impact of infrastructures

Description:

Concept of economic growth and measurement of well-being. Impact of infrastructures on productive activity. Short-term analysis. Long-term analysis. Territorial analysis

Impact of real infrastructure cases. Methodologies used. Discuss the basics.

Specific objectives:

Understand the effect of infrastructures on the economy of a territory. Know the instruments used to quantify the impact. Discuss methodologies for assessing impacts. Discuss a real case and assess it.

Full-or-part-time: 8h

Theory classes: 2h

Practical classes: 2h

Self study : 4h

Assessment of environmental impacts

Description:

Public goods, private goods, common resources. Define the concept of externalities and monetary valuation techniques. Introduce the environmental elements in the economic analysis

Based on real cases, analyze the criteria for assessing the environmental elements and their consequences. Assess the environmental impact of infrastructure.

Specific objectives:

Understand the relationship between economics and the environment. Understand the techniques for assessing environmental functions

Understand the value of the environmental impact of infrastructures. That students learn to use environmental assessment techniques

Full-or-part-time: 10h

Theory classes: 2h

Practical classes: 2h

Self study : 6h

Elements of legislation in the field of Civil Engineering

Description:

Bidding process for a public work. Adjudication methods. Technical offer and economic offer. Risks assumed. Review and modifications of the contract. Role of study departments. Private customers. Concept of concession. Spanish legislation. Types of concessions. Risk of concessions. The payment of the user versus the payment of the administration. Rights and duties of the concessionaire.

Analyze the characteristics of a real concession in the field of infrastructure. Analyze the specifications of an infrastructure.

Specific objectives:

Understand that it is a concession. Familiarize yourself with the process of awarding a public work

Discuss real cases of concessions and awards

Full-or-part-time: 6h

Theory classes: 1h

Practical classes: 1h

Self study : 4h

Practical case seminar

Description:

Present a group work on a topic of the subject

Specific objectives:

Encourage collaborative work Reflect on specific cases and their application

Full-or-part-time: 8h

Practical classes: 4h

Self study : 4h

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 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.

Whit general framework, the subject will be evaluated from a series of activities that will be carried out throughout the school year.

There will be three types of tests during school hours.

Two of them correspond to exams that aim to verify that students know the basic theoretical concepts of the block. We work with these exams autonomous learning.

The other activity will consist of a group work that will have to expose in public. This exercise aims to work on cooperative learning and communication.

In addition, students must solve, during school hours, a series of practical cases that will be raised in class. The goal is for the student to be able to understand the block with its globality and analyze real cases. These tests will also assess written communication skills (generic competence).

The final grade of the subject will be the one obtained from the grades obtained in the three types of activities according to the following weighting:

Each exam is worth 30% of the grade of the subject.

The seminar is worth 20% of the grade of the subject.

The cases done in class are worth 20% of the grade of the subject.

Therefore, the final grade of the subject will be

$$NT = 0.30T1 + 0.30T2 + 0.20Cc + 0.20S1$$

NT: final grade of the subject

Tt: Results of test-exams

Cc: Results of the cases carried out in class

St: Outcome of the seminar

Criteria for re-evaluation qualification and eligibility: students that failed the ordinary evaluation and have regularly attended all evaluation tests will have the opportunity of carrying out a re-evaluation test during the period specified in the academic calendar. Students who have already passed the test or were qualified as non-attending will not be admitted to the re-evaluation test. The maximum mark for the re-evaluation exam will be five over ten (5.0). The non-attendance of a student to the re-evaluation test, in the date specified will not grant access to further re-evaluation tests. Students unable to attend any of the continuous assessment tests due to certifiable force majeure will be ensured extraordinary evaluation periods.

These tests must be authorized by the corresponding Head of Studies, at the request of the professor responsible for the course, and will be carried out within the corresponding academic period.

EXAMINATION RULES.

If any of the continuous assessment activities are not carried out in the scheduled period, it will be considered as a zero score.

BIBLIOGRAPHY

Basic:

- Cambra de comerç de Barcelona. El sistema de peatges a Catalunya: anàlisi i avaluació d'estratègies. Barcelona: Cambra Oficial de Comerç de Barcelona. Estudi Llotja, 2008. ISBN 978849582938X.
- Rus, G. de; Betancor, O.; Campos, J. Evaluación económica de proyectos de transporte [on line]. Washington, D.C.: Banco Interamericano de Desarrollo, 2006 [Consultation: 27/09/2024]. Available on: <http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=1442318>.
- Mankiw, N.G. Principios de economía. 8a ed. México: Cengage Learning, 2020. ISBN 9786075269481.

RESOURCES

Other resources:

Specific material will be prepared for each topic