

## 250103 - ECEMPLEGIS - Economy, Business and Legislation

Coordinating unit:	250 - ETSECCPB - Barcelona School of Civil Engineering
Teaching unit:	751 - DECA - Department of Civil and Environmental Engineering
Academic year:	2018
Degree:	BACHELOR'S DEGREE IN CIVIL ENGINEERING (Syllabus 2010). (Teaching unit Compulsory) BACHELOR'S DEGREE IN CIVIL ENGINEERING (Syllabus 2017). (Teaching unit Compulsory)
ECTS credits:	6
Teaching languages:	Catalan, Spanish

### Teaching staff

Coordinator:	ALVARO GAROLA CRESPO
Others:	ALVARO GAROLA CRESPO, ANDRES MIRAMBELL ARRIZABALAGA, GEMA VELEZ SABATER

### Opening hours

Timetable:	Tuesday of 19:00 to 20:00 and Friday of 19:00 to 20:00
------------	--

### Degree competences to which the subject contributes

#### Specific:

3060. Students will acquire relevant knowledge of businesses and the institutional and legal framework in which they function. They will also study business organisation and management.

#### Transversal:

592. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 2. Using strategies for preparing and giving oral presentations. Writing texts and documents whose content is coherent, well structured and free of spelling and grammatical errors.

595. TEAMWORK - Level 2. Contributing to the consolidation of a team by planning targets and working efficiently to favor communication, task assignment and cohesion.

599. EFFECTIVE USE OF INFORMATION RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.

602. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.

584. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.

### Teaching methodology

The subject consists of 4 hours to the week of actual classes in the classroom.

For each subject one will give material of learning that includes the main theoretical concepts of each one of the analyzed matters, as well as bibliography.

The classes will be structured around practical cases that they serve to observe the basic concepts that are explained in the support material.

We realize one seminary. This seminar will be held in a group, where a specific topic and a presentation in class will work together (duration of 2h). The seminaries will treat on the enterprise analysis, or about the economy of infrastructures.

## 250103 - ECEMPLEGIS - Economy, Business and Legislation

### Learning objectives of the subject

Students will acquire a basic understanding of the concept of business, the associated institutional and legal frameworks, business organisation and management, and the legislative framework of civil engineering.

On completion of the course, students will have acquired the ability to:

1. Conduct financial viability analyses to inform investment in the construction of infrastructures;
2. Conduct economic operation analyses of construction firms;
3. Conduct profitability analyses of the operation, maintenance and conservation of infrastructures.

Economics, including analysis of production activity, the law of supply and demand, production and income; National and international monetary and financial economics; Market economics, growth models and production economics; Regional economics and the role of infrastructures; Principles and management of environmental economics; Business, including types of companies, corporate authority, management, administration and organisation; Business resources, financing, investments and financial assets; Production, supply and demand, promotion and distribution, remuneration of work

Introduce the economic concepts and the principles of business management applied to the scope of civil engineering.

Knowledge the company concept and its organization, operation and management. Knowledge basic concepts around the economy of infrastructures. Legislation in civil engineering.

On more concrete scale they will treat among others, subjects as to realize an economic study of viability for the investment in the construction of an infrastructure, to analyze the economic operation of a construction company, to elaborate an analysis cost-benefit that determine the effects on the social welfare to carry out a certain infrastructure, to value the impact on the environment of infrastructures or to consider the consequences and obligations that the deprived infrastructure financing tolerates through concession methods.

### Study load

Total learning time: 150h	Theory classes:	46h	30.67%
	Practical classes:	10h	6.67%
	Laboratory classes:	4h	2.67%
	Guided activities:	6h	4.00%
	Self study:	84h	56.00%

## 250103 - ECEMPLEGIS - Economy, Business and Legislation

### Content

<p>Introduction to the economy and foundations of micro-economics</p>	<p>Learning time: 19h 12m Theory classes: 8h Self study : 11h 12m</p>
<p>Description: Concept of economy. Basic principles of economy. Bases of the economic analysis. Basic microeconomic concepts. Supply and demand, Type of goods. Concept of elasticity and its effects. Surplus of the consumer. Theory of costs</p> <p>Specific objectives: Introduce the bases of the economic reasoning Basic concepts that are used in many scopes related to civil engineering and the transport, and that is important to understand the enterprise operation.</p>	
<p>Business management economy</p>	<p>Learning time: 44h 24m Theory classes: 12h Practical classes: 6h 30m Self study : 25h 54m</p>
<p>Description: Concept of company, and the diverse typologies. Kinds of society, limited and limitless responsibility, concept of share capital. The sector of the construction like productive activity, particularities of the sector. Characteristics of the construction companies. To introduce the concept of accounting as an element of enterprise analysis. Account of balance, account of losses and gains. Main ratios to analyze the situation of a company. Application of the enterprise ratios in construction sites and infrastructures. Cases about interpretation of company accounts To analyze a viability plan on an infrastructure investment. Concept of investment. Phases of the project. Factors that condition the yield of an investment from the economic and financial point of view. To define the financial criteria that define the viability of a project as the TIR and VAN. Cases about plans of viability</p> <p>Specific objectives: To understand the bases of the operation of the companies, and to concentrate in the sector of the construction, that will be the field of preferred action of the Civil Engineers. That the students learn to interpret, the situation of a company or a work, through the elements that the accounting. That the students learn to interpret, the situation of a company or a work, through the elements that the accounting That the students learn to interpret the viability of a project of investments in infrastructures. That the students learn to interpret the viability of a project of investments in infrastructures</p>	

## 250103 - ECEMPLEGIS - Economy, Business and Legislation

<p>Economy of Infraestructures</p>	<p>Learning time: 51h 36m Theory classes: 14h 30m Practical classes: 6h Laboratory classes: 1h Self study : 30h 06m</p>
<p>Description:</p> <p>Public financing. Classic method, toll in the shade, right of use. The taxes like financial of the investment. Private financing. Payment on the part of the user. The prices of infrastructures like regulators of the demand. Effects on the fairness. Project Finance.</p> <p>To introduce the analysis cost-benefit. Use of these methods for values the utility and to establish priorities at the time of defining the policies in the matter of infrastructures. To apply instrument to them of a viability plan to analyze the effects on the global well-being of the society.</p> <p>Cases about cost-benefit analysis</p> <p>Public goods deprived, goods, common resources. Define the concept of externalities and the techniques of monetary valuation. Introduce the environmental elements in the economic analysis</p> <p>Concept of economic growth and measurement of the well-being. Impact of infrastructures on the productive activity. Analysis in the short term. Analysis in the long term. Territorial analysis</p> <p>A seminary will become in which it will altogether analyze the economic and social effects of an infrastructure. It will be valued through a work in group. In order to carry out the seminary the group in 3 sub-groups will be divided.</p> <p>Specific objectives:</p> <p>To introduce to the students in the basic concepts on finance the infrastructures and the possibilities finance that the public and private financing gives.</p> <p>That the students learn to interpret the viability in social terms and of well-being of a project of investments in infrastructures.</p> <p>That the students learn to interpret the viability in social terms and of well-being of a project of investments in infrastructures.</p> <p>That the students value that the infrastructures are special goods and that they have repercussions on the environment and as they are possible to be valued in monetary terms.</p> <p>To evaluate the paper that has infrastructures on the economic base of the country, and its effects on the well-being and the development</p> <p>To favor the participation and the work in group</p>	



## 250103 - ECEMPLEGIS - Economy, Business and Legislation

Legislation	Learning time: 28h 47m Theory classes: 11h Laboratory classes: 1h Self study : 16h 47m
<p>Description:</p> <p>Process of licitation of a public work. Methods of awarding. Technical supply and economic supply. Assumed risks. Revision and modifications of the contract. Paper of the study departments. The private clients. Elements differentials of the sector of the construction. The concept of UTE and its application. Concept of sub-contracting and its consequences. Particularities of the labor hiring. Specific fiscalty of the construction Concept of concession. Spanish legislation. Typologies of concessions. Risk of the concessions. Financial classic model, models based on the management. The payment of the user versus the payment of the administration. Rights and duties of the concessionaire. Reversion flow.</p> <p>Specific objectives:</p> <ul style="list-style-type: none"><li>To know the legislation basic about the licitation process and awarding of a work publishes</li><li>To understand that the characteristic differentials of the construction have legislative repercussions that affect the frame of work of the Civil Engineers.</li><li>To introduce the concession concept, a figure more and more extended in the construction and infrastructure management, and to explain its legislative particularities.</li></ul>	

## 250103 - ECEMPLEGIS - Economy, Business and Legislation

### Qualification system

The subject will be evaluated from a series of activities that will be carried out throughout the school period.

There will be three kinds of activities during school hours.

Two of them correspond to test that try to ensure that students know the basic theoretical concepts of the block. These tests are independent learning works.

The second kind of activity will be a group project that will be exposed in public. This exercise is intended to work cooperative learning and communication.

In addition, students will have to solve, inside school hours, different case studies to be presented in class. The goal that the student be able to understand a whole block and analyze real cases. These tests also assess written communication skills (generic competition).

The final grade for the course will be that obtained from scores on the three types of activities according to the following weighting:

Each test is worth 25% of the course grade.

The seminar is worth 20% of the course grade.

Case studies is worth 30% of the course grade.

Therefore, the final grade for the course will

$$NT=0,8*(0,25T1+0,25T2+0,30Cc+0,20S1))+0,2*((T1)^{(0,25)}*((T2)^{(0,25)}*((Cc)^{(0,30)}*((S1)^{(0,20)}))$$

NT: Final note

Tt: result of test

Cc: result of class case studies

St: note of seminary

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.

### Regulations for carrying out activities

Failure to perform continuous assessment activity in the scheduled period will result in a mark of zero in that activity.

## 250103 - ECEMPLEGIS - Economy, Business and Legislation

### Bibliography

#### Basic:

Mankiw, N.G. Principios de economía. 6a ed. Madrid: Paraninfo, 2012. ISBN 9788497328975.

Truyols, S.; Saiz, J.M. Economía aplicada a la construcción: teoría y problemas resueltos. Madrid: Bellisco, 2005. ISBN 8496486176.

Leonart, P. Estrategias empresariales de las principales constructoras españolas y europeas: los grandes grupos especializados (1998-2000-2004-2007). Barcelona: Gabinet d'Estudis Econòmics, 1998-. ISBN 8492078588.

Cuatrecasas, L. Gestión económico-financiera de la empresa. Barcelona: Edicions UPC, 1996. ISBN 8483011662.

Revista de Obras Públicas. El nuevo sistema concesional. 2002.

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. Washington, D. C.: Banco Interamericano de Desarrollo, 2006.