Course guide
2500044 - GECGETRANS - Transportation Management

Last modified: 01/10/2023

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). (Optional subject).

Academic year: 2023 **ECTS Credits:** 6.0 **Languages:** Spanish

LECTURER

Coordinating lecturer: JOSÉ MAGÍN CAMPOS CACHEDA

Others: JOSÉ MAGÍN CAMPOS CACHEDA

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
14422. Capacity for the construction and conservation of roads, as well as for the dimensioning, the project and the elements that make up the basic road equipment. (Specific technology module: Urban Transport and Services)
14423. Capacity for the construction and conservation of railway lines with knowledge to apply specific technical regulations and differentiating the characteristics of the mobile material. (Specific technology module: Urban Transport and Services)
14424. Knowledge of the urban management regulation framework. (Specific technology module: Urban Transport and Services)
14425. Knowledge of the influence of infrastructure in the planning of the territory and to participate in the urbanization of urban public space, such as water distribution, sanitation, waste management, transport systems, traffic, lighting, etc. (Specific technology module: Urban Transport and Services)
14426. Knowledge of the design and operation of infrastructures for modal exchange, such as ports, airports, railway stations and transport logistics centers. (Specific technology module: Urban Transport and Services)

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.
14383. Ability to project, inspect and direct works, in their field.
14385. Ability to carry out territorial planning studies and environmental aspects related to infrastructure, in its field.
14386. Capacity for maintenance, conservation and exploitation of infrastructure, in its field.
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 4 hours a week of classes. The course is set up with lectures and case studies. It will also be conducting a mandatory course work. Support materials will be detailed in the virtual campus implemented ATENEA.

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

Knowledge of the basic elements of mobility. Transport costs. Decision making and economic evaluation of infrastructures and transport services. Transport in non-mechanized modes (pedestrian, bicycles). Transport by road, rail, aerial and maritime: infrastructures, vehicles, organization and management.

1 Capacity for the management and exploitation of infrastructures for modal exchange, such as ports, airports, railway stations and logistics transport centers.

Knowledge of analysis and evaluation tools for transport systems such as: operational research, traffic theory, analysis of operations, techniques for estimating and forecasting demand, transport economics, evaluation of alternatives, modeling of systems and allocation of flows. Knowledge of the causal and quantitative functioning of the transport system, as well as the behavior of the different agents that comprise it (users, operators and administration / society). Knowledge of the design, operation and operation of transport terminals and infrastructures, as well as the management of the resources necessary for their operation and of the patterns of mobility of people and goods and their relationship with ICT: Terminals for modal passenger exchange in urban public transport systems, airport terminals (land side management, air side, baggage management system), port terminals (operation of container terminals, liquid / solid bulk, cars, ro-ro, etc.), railway terminals and dry ports, road terminals, logistics centers and merchandise consolidation terminals.

STUDY LOAD

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

Total learning time: 150 h

CONTENTS

The general framework of the transport system

Description:
Concept. Analysis models. Data and information collection.
Analysis of real implantations
Classification and cost models. Monopoly, competition and collaboration of operators.
Analysis of real implantations
Policies in Spain and Europe. Investment evaluation and profitability.
Analysis of real implantations
Public and private services. Relations between public administrations and service provider companies.
Analysis of real implantations

Specific objectives:
Introduce the student in the analysis of transport demand
Present the applied aspect of the implantations regarding transport systems
Introduction to transportation economics
Present the applied aspect of the implantations regarding transport systems
Analysis of planning criteria for transport systems and infrastructure
Present the applied aspect of the implantations regarding transport systems
Description of current management policies for transport systems
Present the applied aspect of the implantations regarding transport systems

Full-or-part-time: 57h 35m
Theory classes: 12h
Practical classes: 12h
Self study : 33h 35m

Modes of transport

Description:
Infrastructures and terminals. Vehicles and auxiliary elements for loading and unloading.
Analysis of real implantations
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Analysis of real implantations
Infrastructures and terminals. Vehicles and auxiliary elements for loading and unloading.
Analysis of real implantations
Infrastructures and terminals. Vehicles. Business. Costs.
Analysis of real implantations

Specific objectives:
Introduction to the necessary elements for the provision of this type of transport.
Present the applied aspect of the implantations regarding transport systems
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Introduction to the necessary elements for the provision of this type of transport
Present the applied aspect of the implantations regarding transport systems
Introduction to the necessary elements for the provision of this type of transport and description of its operations
Present the applied aspect of the implantations regarding transport systems

Full-or-part-time: 86h 24m
Theory classes: 18h
Practical classes: 18h
Self study : 50h 24m

GRADING SYSTEM

The rating of the course is obtained from the scores for the continuous assessment and qualification of the course work.

Continuous assessment (E), coursework (T). Final Score = 0.7 * E + 0.3 * T

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.

Failure to perform any activity or the continuous assessment of coursework in the selected period will be considered as zero score.

BIBLIOGRAPHY

Basic:
- Izquierdo, R. (ed.). Transportes: un enfoque integral. Madrid: Colegio de Ingenieros de Caminos, Canales y Puertos, 2001. ISBN 843800198X.

Complementary:
- Daganzo, C. Fundamentals of transportation and traffic operations. Oxford: Pergamon, 1997. ISBN 0080427855.
- Ballou, Ronald H. Logística empresarial : control y planificación. 1. Barcelona: Díaz de Santos, 1991. ISBN 8487189687.