Course guides
250452 - GESLINALTV - High-Speed Rail Line Management

Last modified: 06/10/2020

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

Degree: MASTER'S DEGREE IN CIVIL ENGINEERING (PROFESSIONAL TRACK) (Syllabus 2012). (Optional subject).
MASTER'S DEGREE IN CIVIL ENGINEERING (PROFESSIONAL TRACK) (Syllabus 2012). (Optional subject).
MASTER'S DEGREE IN SUPPLY CHAIN, TRANSPORT AND MOBILITY MANAGEMENT (Syllabus 2014). (Optional subject).

Academic year: 2020 **ECTS Credits:** 5.0 **Languages:** Spanish

LECTURER

Coordinating lecturer: BENEDICTO LIZCANO NUÑEZ

Others: BENEDICTO LIZCANO NUÑEZ

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
8169. The ability to plan, manage and operate civil engineering infrastructure.
8234. Knowledge of transport engineering and planning, transport types and functions, urban transport, management of public transport services, demand, costs, logistics, and financing of transport infrastructure and services.

Transversal:
8559. ENTREPRENEURSHIP AND INNOVATION: Being aware of and understanding the mechanisms on which scientific research is based, as well as the mechanisms and instruments for transferring results among socio-economic agents involved in research, development and innovation processes.
8560. SUSTAINABILITY AND SOCIAL COMMITMENT: Being aware of and understanding the complexity of the economic and social phenomena typical of a welfare society, and being able to relate social welfare to globalisation and sustainability and to use technique, technology, economics and sustainability in a balanced and compatible manner.

8561. TEAMWORK: Being able to work in an interdisciplinary team, whether as a member or as a leader, with the aim of contributing to projects pragmatically and responsibly and making commitments in view of the resources that are available.

TEACHING METHODOLOGY

The course consists of 1,8 hours per week of classroom activity (large size group) and 0,8 hours weekly with half the students (medium size group).

The 1,8 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 0,8 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.

The rest of weekly hours devoted to laboratory practice.

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

Specialization subject in which knowledge on specific competences is intensified.

Knowledge and skills at specialization level that permit the development and application of techniques and methodologies at advanced level.

Contents of specialization at master level related to research or innovation in the field of engineering.

STUDY LOAD

Type	Hours	Percentage
Laboratory classes	9,8	7.83
Theory classes	19,5	15.59
Practical classes	9,8	7.83
Guided activities	6,0	4.80
Self study	80,0	63.95

Total learning time: 125.1 h

CONTENTS

High speed rail

Description:
Mobility and infrastructure. The need for high speed rail
The first high-speed lines and the difficulties of acceptance
Social pressure and the consolidation of high-speed Europe. The impact on the conventional railway
The practical significance of the high speeds currently
From idea to reality in a high speed line
Planning criteria and geometric parameters. Design of high speed lines
Technical implications of traffic at high speed
Construction and validation of a high speed line
Transport demand and the operating system associated with each line
The material and its high-speed commercial services
Impact of high speed services in the modal distribution
Economic and financial analysis
The incorporation of new countries to provide high speed
Horizons of high speed

Full-or-part-time: 86h 24m
Theory classes: 36h
Self study : 50h 24m

Control

Full-or-part-time: 7h 11m
Laboratory classes: 3h
Self study : 4h 11m

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.

EXAMINATION RULES.

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

BIBLIOGRAPHY

Basic:

- López Pita, A. Alta velocidad en el ferrocarril. Barcelona: Edicions UPC, 2010. ISBN 9788498804164.