

## 250452 - GESLINALTV - High-Speed Rail Line Management

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| Coordinating unit:  | 250 - ETSECCPB - Barcelona School of Civil Engineering                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Teaching unit:      | 751 - DECA - Department of Civil and Environmental Engineering                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Academic year:      | 2015                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Degree:             | MASTER'S DEGREE IN CIVIL ENGINEERING (RESEARCH TRACK) (Syllabus 2007). (Teaching unit Optional)<br>MASTER'S DEGREE IN CIVIL ENGINEERING (PROFESSIONAL TRACK) (Syllabus 2012). (Teaching unit Optional)<br>MASTER'S DEGREE IN CIVIL ENGINEERING (PROFESSIONAL TRACK) (Syllabus 2012). (Teaching unit Optional)<br>MASTER'S DEGREE IN CIVIL ENGINEERING (RESEARCH TRACK) (Syllabus 2009). (Teaching unit Optional)<br>MASTER'S DEGREE IN SUPPLY CHAIN, TRANSPORT AND MOBILITY MANAGEMENT (Syllabus 2014). (Teaching unit Optional) |
| ECTS credits:       | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Teaching languages: | Spanish                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

### Teaching staff

|              |                   |
|--------------|-------------------|
| Coordinator: | ANDRES LOPEZ PITA |
| Others:      | ANDRES LOPEZ PITA |

### 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.

### 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

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at advanced level.

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

### Study load

|                           |                     |         |        |
|---------------------------|---------------------|---------|--------|
| Total learning time: 125h | Theory classes:     | 19h 30m | 15.60% |
|                           | Practical classes:  | 9h 45m  | 7.80%  |
|                           | Laboratory classes: | 9h 45m  | 7.80%  |
|                           | Guided activities:  | 6h      | 4.80%  |
|                           | Self study:         | 80h     | 64.00% |

### Content

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| High speed rail                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>Learning time: 86h 24m</p> <p>Theory classes: 36h</p> <p>Self study : 50h 24m</p>  |
| <p>Description:</p> <p>Mobility and infrastructure. The need for high speed rail</p> <p>The first high-speed lines and the difficulties of acceptance</p> <p>Social pressure and the consolidation of high-speed Europe. The impact on the conventional railway</p> <p>The practical significance of the high speeds currently</p> <p>From idea to reality in a high speed line</p> <p>Planning criteria and geometric parameters. Design of high speed lines</p> <p>Technical implications of traffic at high speed</p> <p>Construction and validation of a high speed line</p> <p>Transport demand and the operating system associated with each line</p> <p>The material and its high-speed commercial services</p> <p>Impact of high speed services in the modal distribution</p> <p>Economic and financial analysis</p> <p>The incorporation of new countries to provide high speed</p> <p>Horizons of high speed</p> |                                                                                       |
| Control                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>Learning time: 7h 11m</p> <p>Laboratory classes: 3h</p> <p>Self study : 4h 11m</p> |



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### Qualification 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.

### Regulations for carrying out activities

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:

Andrés López Pita. Alta velocidad en el ferrocarril. Barcelona: Edicions UPC, 2010. ISBN 978-84-9880-416-4.