Degree: BACHELOR'S DEGREE IN PUBLIC WORKS ENGINEERING (Syllabus 2010). (Teaching unit Optional)
ECTS credits: 6
Teaching languages: Spanish

Teaching staff
Coordinator: JOSÉ MAGÍN CAMPOS CACHEDA
Others: JOSÉ MAGÍN CAMPOS CACHEDA

Degree competences to which the subject contributes

Specific:
3095. Knowledge of the design and functioning of intermodal exchange infrastructures such as ports, airports, railway stations and transport logistics centres

General:
3105. Students will learn to identify, formulate and solve a range of engineering problems. They will be expected to show initiative in interpreting and solving specific civil engineering problems and to demonstrate creativity and decision-making skills. Finally, students will develop creative and systematic strategies for analysing and solving problems.
3106. Students will learn to assess the complexity of the problems examined in the different subject areas, identify the key elements of the problem statement, and select the appropriate strategy for solving it. Once they have chosen a strategy, they will apply it and, if the desired solution is not reached, determine whether modifications are required. Students will use a range of methods and tools to determine whether their solution is correct or, at the very least, appropriate to the problem in question. More generally, students will be encouraged to consider the importance of creativity in science and technology.
3107. Students will learn to identify, model and analyse problems from open situations, consider alternative strategies for solving them, select the most appropriate solution on the basis of reasoned criteria, and consider a range of methods for validating their results. More generally, students will learn to work confidently with complex systems and to identify the interactions between their components.
3111. Students will learn to plan, design, manage and maintain systems suitable for use in civil engineering. They will develop a systematic approach to the complete life-cycle of a civil engineering infrastructure, system or service, which includes drafting and finalising project plans, identifying the basic materials and technologies required, making decisions, managing the different project activities, performing measurements, calculations and assessments, ensuring compliance with specifications, regulations and compulsory standards, evaluating the social and environmental impact of the processes and techniques used, and conducting economic analyses of human and material resources.
3112. Students will develop an understanding of the different functions of engineering, the processes involved in the life-cycle of a construction project, process or service, and the importance of systematising the design process. They will learn to identify and interpret the stages in preparing a product design specification (PDS), draft and optimise specifications and planning documents, and apply a systematic design process to the implementation and operation phases. Students will learn to write progress reports for a design process, use a range of project management tools and prepare final reports, and will be expected to show an awareness of the basic economic concepts associated with the product, process or service in question.
3113. Students will learn to identify user requirements, to draft definitions and specifications of the product, process or service in question, including a product design specification (PDS) document, and to follow industry-standard design management models. Students will be expected to show advanced knowledge of the steps involved in the design, execution and operation phases and to use the knowledge and tools covered in each subject area to the design and execution of their own projects. Finally, students will assess the impact of national, European and
250249 - GESTTRANS - Transportation Management

Students will acquire an understanding of the design and operation of intermodal facilities, including ports, airports, railway stations and transport logistics centres.

Transport and urban services pathway

Transport-system analysis and evaluation tools, such as operations research, traffic theory, operations analysis, demand estimation and forecasting techniques, transport economics, evaluation of alternatives, transport system modelling and route assignment; Causal and quantitative operation of transport systems and behaviour of the various agents that comprise them (users, operators and administration/society); Design, functioning and operation of transport terminals and infrastructure; Management of the resources necessary to operate transport terminals and infrastructure; Mobility patterns of people and merchandise, and their relationship to ICTs; Intermodal passenger terminals in urban public-transport systems, airport terminals (land-side management, air-side management and baggage-handling systems), port terminals (operation of container terminals, dry and liquid bulk terminals, automobile terminals, ro-ro terminals, etc.), railway terminals and dry ports, highway terminals, logistics centres and freight-consolidation terminals.

Transversal:

586. ENTREPRENEURSHIP AND INNOVATION - Level 2. Taking initiatives that give rise to opportunities and to new products and solutions, doing so with a vision of process implementation and market understanding, and involving others in projects that have to be carried out.
589. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 2. Applying sustainability criteria and professional codes of conduct in the design and assessment of technological solutions.
594. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.
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 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.

Learning objectives of the subject

Students will acquire an understanding of the design and operation of intermodal facilities, including ports, airports, railway stations and transport logistics centres.

Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 40h 30m</th>
<th>27.00%</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Hours medium group: 13h 30m</td>
<td>9.00%</td>
</tr>
<tr>
<td></td>
<td>Hours small group: 6h</td>
<td>4.00%</td>
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<tr>
<td></td>
<td>Guided activities: 6h</td>
<td>4.00%</td>
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<tr>
<td></td>
<td>Self study: 84h</td>
<td>56.00%</td>
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</table>
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Content

**The overall framework of the transport system**

<table>
<thead>
<tr>
<th>Learning time: 48h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory classes: 12h</td>
</tr>
<tr>
<td>Practical classes: 4h</td>
</tr>
<tr>
<td>Laboratory classes: 4h</td>
</tr>
<tr>
<td>Self study: 28h</td>
</tr>
</tbody>
</table>

**Description:**

**Specific objectives:**
Presenting the fundamentals of the operation of transport systems. To introduce the analysis of the behavior of people and goods in transport. Introduce students to the analysis of transport demand. Description of existing policies for the management of transport systems. Present the practical side of the implants on transport systems. Describe the relationship between transport networks and regional development. Introduction to transport economics. Overview of funding systems applied to the case of transport. Analysis of criteria for planning the transport systems and infrastructures. Present the practical side of the implants on transport systems.
### The transport modes

<table>
<thead>
<tr>
<th>Learning time:</th>
<th>57h 35m</th>
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</thead>
<tbody>
<tr>
<td>Theory classes:</td>
<td>16h 30m</td>
</tr>
<tr>
<td>Practical classes:</td>
<td>5h 30m</td>
</tr>
<tr>
<td>Laboratory classes:</td>
<td>2h</td>
</tr>
<tr>
<td>Self study:</td>
<td>33h 35m</td>
</tr>
</tbody>
</table>

### Description:
- Infrastructure and terminals. Vehicles and other equipment for loading and unloading.
- Organization of the sector and ancillary businesses. Costs.
- Analysis of actual implementations

### Specific objectives:
- Introduction to the elements necessary to provide such transport.
- Description of the operation of this type of transport
- Present the practical side of the implants on transport systems
- Introduction to the elements necessary for the provision of such transport
- Description of the operation of this type of transport
**Particular elements of study**

<table>
<thead>
<tr>
<th>Learning time: 38h 24m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory classes: 12h</td>
</tr>
<tr>
<td>Practical classes: 4h</td>
</tr>
<tr>
<td>Self study: 22h 24m</td>
</tr>
</tbody>
</table>

**Description:**
Traffic patterns and fundamentals, management and control systems.
Analysis of the concepts of capacity and service level in different transport modes
Risk analysis and mitigation measures in the transport systems
Information technology and communications technology (ICT) applied to tte
Analysis of actual implementations
Urban mass transit systems and intercity
Urban freight distribution
Logistics. Supply chain management. Storage and inventory management.
Logistics centers: Types. Classification. Functions.
Analysis of actual implementations

**Specific objectives:**
Introduction to traffic engineering
Introduction to the concepts of capacity and level of service modes
Introduction to Safety and security concepts in transport
Introduction to ICT for transport
Present the practical side of the implants on transport systems
Introduction to systems analysis of public passenger transport
Systems analysis and solutions for urban freight distribution
Introduction to logistics systems analysis
Describe the logic implementation of logistics centers
Present the practical side of the implants on transport systems

**Qualification 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.
Regulations for carrying out activities

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

Bibliography

Basic:

Complementary: