250ST016 - Transport Economics

**Coordinating unit:** 240 - ETSEIB - Barcelona School of Industrial Engineering

**Teaching unit:** 751 - DECA - Department of Civil and Environmental Engineering

**Academic year:** 2019

**Degree:** MASTER'S DEGREE IN SUPPLY CHAIN, TRANSPORT AND MOBILITY MANAGEMENT (Syllabus 2014). (Teaching unit Compulsory)
MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2014). (Teaching unit Optional)

**ECTS credits:** 5

**Teaching languages:** Spanish, English

### Degree competences to which the subject contributes

#### Specific:
- CESCTM6. Ability to analyze financial, economic and social viability of infrastructure and transport services and mobility, which help to understand the business of the transport system and help in decision-making systems.
- CETM2. Understanding and quantifying capacity fundamentals transport systems and mobility determine the safety, quality and sustainability of transport infrastructure and optimizing the operation of these systems.
- CETM3. Knowledge for planning, management and operation of transportation systems and mobility, ability to analyze service levels to users, operating costs and environmental and social such as mass transit, and private vehicle traffic impacts, air transport, sea transport, intermodal transport and urban mobility.

### Teaching methodology

Lectures, case studies and exercises

### Learning objectives of the subject

Study and deepen in subjects related to Transportation Economy in a global context.

### Study load

<table>
<thead>
<tr>
<th>Total learning time: 125h</th>
<th>Hours large group:</th>
<th>30h</th>
<th>24.00%</th>
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<tbody>
<tr>
<td></td>
<td>Hours small group:</td>
<td>15h</td>
<td>12.00%</td>
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<td>Self study:</td>
<td>80h</td>
<td>64.00%</td>
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Opening hours

**Timetable:** Request by email: alvar.garola@upc.edu
# 250ST016 - Transport Economics

## Content

<table>
<thead>
<tr>
<th>Block I. Microeconomics</th>
<th>Learning time: 41h 30m</th>
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<tbody>
<tr>
<td></td>
<td>Practical classes: 10h</td>
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<tr>
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<td>Laboratory classes: 5h</td>
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<td>Self study: 26h 30m</td>
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### Description:
- Microeconomics: production functions, cost functions, functions of demand.
- Productivity and efficiency, scale economies, concentration, location decision and transportation.
- Externalities
- Pricing: Theory of pricing, charging public transport, road pricing, parking pricing

<table>
<thead>
<tr>
<th>Block II. Logistics and Ports</th>
<th>Learning time: 17h 30m</th>
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<tbody>
<tr>
<td></td>
<td>Practical classes: 4h</td>
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<tr>
<td></td>
<td>Laboratory classes: 2h</td>
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<td>Self study: 11h 30m</td>
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### Description:
- Industry logistics costs logistics, cost of handsets, operating costs, business model.
- Intermodal transport
- Ports economics

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<tr>
<th>Block III. Project Appraisal</th>
<th>Learning time: 33h</th>
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<tr>
<td></td>
<td>Practical classes: 8h</td>
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<tr>
<td></td>
<td>Laboratory classes: 4h</td>
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<td>Self study: 21h</td>
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### Description:
- Cost Benefit Analysis
- Calculation of externalities
- Multi-criteria analysis

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<tr>
<th>Block IV. Financial tools - Concessions</th>
<th>Learning time: 33h</th>
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<tbody>
<tr>
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<td>Practical classes: 8h</td>
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<tr>
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<td>Laboratory classes: 4h</td>
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<td>Self study: 21h</td>
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</tbody>
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### Description:
- Concessions and PPPs
- Financial Instruments: IRR, NPV, economic and financial plans
- Risk analysis
- Business models concession: Shadow tolls, tolls, public transport
Qualification system

Global examination: Grade=0,33P1+0,33P2+0,34T
P1= 1- Partial examination
P2= 2- Partial examination
T= Class exercises

Bibliography

Basic: