250ST2022 - Funding Investment in Transport

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 Optional)
MASTER'S DEGREE IN INDUSTRIAL ENGINEERING (Syllabus 2014). (Teaching unit Optional)
ECTS credits: 5
Teaching languages: English

Teaching staff
Coordinator: Turró Calvet, Mateu

Opening hours
Timetable: Email appointment

Prior skills
None, but basic knowledge of Economics and Transport Planning is expected. Capacity to develop Exel files. It is convenient to have taken the course "Avaluació i presa de decisions en transport", as the theoretical aspects and the mechanics of cost-benefit analysis (CBA) are explained there in much more detail.

Teaching methodology
Theory lessons with the expected active participation of the students and the development of a financial analysis of a transport infrastructure project (this year the Diagonal Tram in Barcelona).

Learning objectives of the subject
Get some basic knowledge about the financing of major projects, particularly investments in transport. The basic principles of investment financing will be mastered, with a deep understanding of the specific aspects of large investments, with emphasis on the participation of private agents in the funding and management of the project. At the end of the course the student should have a good understanding of the financing of investments and be able to communicate with other professionals who also intervene in the process, in particular with politicians, investors and bankers.

Study load

<table>
<thead>
<tr>
<th>Total learning time: 125h</th>
<th>Hours large group:</th>
<th>30h</th>
<th>24.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours small group:</td>
<td>15h</td>
<td>12.00%</td>
</tr>
<tr>
<td></td>
<td>Self study:</td>
<td>80h</td>
<td>64.00%</td>
</tr>
</tbody>
</table>
250ST2022 - Funding Investment in Transport

<table>
<thead>
<tr>
<th>Programme</th>
<th>Learning time: 2h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theory classes: 2h</td>
</tr>
</tbody>
</table>

Description:
Introduction to the course
1. What is a project? Discussion based on HS2
   a. Identifying a transport project
   b. The economic and social foundations of an infrastructure project
   c. Costing a project
   d. Revenue generation
   e. Examples of major transport infrastructure projects
2. The decision-making process
   a. Project quality as a pre-requisite for financing
   b. The planning context
   c. Programming
   d. Project selection
3. The project cycle
   a. Preparatory works
   b. Land purchase and expropriations
   c. Structuring the bidding
   d. Construction
   e. Commissioning
   f. Operation and maintenance
   g. Project cycle and financing
4. Stakeholders in a major transport project
   a. Promoters
   b. Consultants
   c. Construction companies and infrastructure managers
   d. Users
   e. Authorities
   f. Other
5. Project finance and Special Purpose Vehicles
   a. The limitation of recourse
   b. Establishing an SPV entity
   c. Due diligence, disputes and arbitration
6. Funding a project
   a. Money and time
   b. Sources of funding
   c. Financial structuring
   d. Grants and loans
   e. Provision of funds
   f. Taxation
   g. Global trends in the transport project finance market
7. Public sector financing (EU, national, regional, local)
   a. EU funds for transport infrastructure: Structural and Investment Funds, Connecting Europe Facility, etc.
   b. Public accounts. Investment lines in national, regional and local budgets.
   c. The constraints of public investment (macroeconomics)
8. Private investment in transport projects
   a. Attractiveness of infrastructure projects for private investors
   b. The approach of Institutional investors
   c. Mechanisms for channelling private money to long-term projects
9. Public-private partnerships (PPPs)
   a. Defining PPPs. Models
   b. Objectives of PPPs
   c. Arguments in favour of and against PPPs
d. Requirements for successful PPPs

e. Management of PPPs for transport infrastructure

f. PPP limits: legal requirements, institutional capacity, transaction costs

10. Concessions and other mechanisms to involve the private sector in public infrastructure

a. Structures for transferring responsibilities on public services to private investors

b. The concession contract

c. Public procurement. Bidding for concessions

11. The role of banks and international financial institutions

a. Why lenders are needed

b. Commercial and public banks

c. Bond issues

d. International financing institutions

e. The European Investment Bank

f. The World Bank and the other IFIs

12. Structuring the financial package

a. Public sector funding

b. Private investors: equity and debt

c. Credit enhancement techniques

13. Uncertainty and risks in projects

a. Uncertainties in transport projects

b. Dealing with uncertainty

c. Risk mitigation measures

d. Structuring PPPs around risks and rewards

e. Project monitoring

14. Financial simulations

a. Costs and revenues

b. Parameters and variables

c. Introducing uncertainty and randomness

d. Analysing simulation results

15. Profitability and redistribution

a. Benefits and profits

b. Businesses, users, taxpayers and the political arena

c. Transparency in decision-making

Related activities:

A case study will be collectively developed by the students, with each one (or a small group of them) taking responsibility of a part of the financial simulation model (in Excel) of a transport investment project. At the end of the course, the complete model will be presented.

Qualification system

Partial test, value 20%

Final test, value 30%

Participation in course activities (esp. modelling exercise), discussions in class, etc. 50%
Bibliography

Basic:


