**“Fundamentals of transport planning and management”**

**Syllabus CT.05/2**

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Version 1

# Name of the course

**Fundamentals of Transport Planning and Management**

# ECTS credits

6 Credits, (**45 hours of Theory + 30 hours of Exercises & Lab**), 2nd semester

# Objectives

This lecture familiarizes students with main goals and components of transportation systems. Regarding the issue of Transport planning and management, students acquire some basic knowledge on organizational structure, methods and procedures used in transport planning and finally on the role of ITS in transport system.

The main objectives of this lecture are expressed by the following keywords:   *transportation system; transport planning; transport management*

# Learning outcomes

The students should gain the following knowledge and skills :

* to realize transport system components and processes
* to understand transport problems on site level and to define these problems
* to understand the context between transport planning and land-use, social and economic conditions
* to realize transport planning actors, institutions, methods and procedures
* to realize role and activities of transport management
* to set up an analysis and implementation programs
* to realize fields for ITS applications.

# Contents

1. **Fundamentals of transport systems**
   1. Transport system components
   2. Transport modes and terminals
   3. System key issues for all transport modes
   4. Role of ITS in transport system
2. **Transport planning processes**
   1. Formal transport planning procedures on national, regional and local level (planning acts)
   2. Integration of transport and land use planning
   3. Planning steps (diagnosis and evaluation, goals and concepts, decision making, implementation and monitoring)
3. **Transport policy and multi-modal transport studies**
   1. Transport policy and strategic planning for ITS
   2. Transport strategies (top-down approach)
   3. Transport plans (bottom-up approach)
4. **Surveying and modelling in transport planning** 
   1. Data availability and travel surveys
   2. Transport models for planning
   3. 4 step travel-demand forecasting model
   4. Scheduled service model
   5. Software availability and specialist modelling knowledge
5. **Urban transport planning** 
   1. Public transport system planning (lines, networks, stations, terminals)
   2. Walking and cycling system planning
   3. Parking system planning
   4. Information system planning
   5. Planning case studies of ITS implementation
6. **Intermodal integration planning** 
   1. Principles of transport integration
   2. Barriers to intermodal integration
   3. Passenger interchange supplies and quality
   4. Freight interchange supplies and quality
7. **Accessibility and mobility planning**
   1. Accessibility versus mobility
   2. Travel demand management
   3. Mobility management
8. **Transportation impacts**
   1. Transport safety and security planning
   2. Sustainability in transportplanning
   3. Territorial development evaluation
   4. Economic analysis
9. **Transport Safety**
   1. Transport accidents
   2. Safety evaluation
   3. Safety countermeasures
   4. CBA

# Teaching method

Lectures, case studies, Tutorials/exercises,

* The slides are available for the whole lecture. These slides must be provided to students. The full contents of each slide is systematically explained by the Lecturer. Additional examples which are not included in slides will be proposed by the Lecturer to allow good understanding of the information provided.
* Several exercises will be proposed by the Lecturer to be solved by students as projects. This will help to test the self-learning potential of students. In laboratory using educational software, students will undertake tasks in:
  + Travel matrix calculation for small urban area (Vissum)
  + Road (street) or public transport network replanning
  + Designing of mobility plan for company, school

# Assessment method

Mid-term and final oral and/or written examination, exercises from case studies.

# Textbooks - Publications - Software

**Textbooks and Publications**

1. Papacostas C.S.; Prevedouros P.D.; *Transportation Engineering and Planning*, Prentice-Hall, Inc. 2005
2. Sussman J.; Introduction to Transportation Systems, Artech House Boston, London, 2000
3. O’Flaherty C.A. ed.; Transport Planning and Traffic Engineering, Arnold London1997
4. Bruton M.J.; Introduction to transportation planning Hutchinson London 1971
5. Litman T.; Introduction to Multi-Modal Transportation Planning - *Principles and Practices, Victoria Transport Policy Institute* 2009, [www.vtpi.org/multimodal\_planning.pdf](http://www.vtpi.org/multimodal_planning.pdf)
6. Planning Policy Guidance 13:Transport. TSO Norwich 2006 [www.communities.gov.uk/documents/planningandbuilding/pdf/155634.pdf](http://www.communities.gov.uk/documents/planningandbuilding/pdf/155634.pdf)
7. Integrated Transport Planning Framework. A Guide for Transport Planning, Queensland Gov. 2003 <http://www.transport.qld.gov.au/Home/Projects_and_initiatives/Plans/Integrated_transport_plans/Integrated_transport_planning_framework/Publication_integrated_transport_planning_framework>
8. FHWA and FTA (2007), *The Transportation Planning Process Key Issues: A Briefing Book for Transportation Decisionmakers, Officials, and Staff*, FHWA-HEP-07-039, FHWA and FTA at [www.planning.dot.gov/documents/briefingbook/bbook.htm](http://www.planning.dot.gov/documents/briefingbook/bbook.htm)
9. Todd Litman (2001), “Generated Traffic; Implications for Transport Planning,” *ITE Journal*, Vol. 71, No. 4, (www.ite.org), April, pp. 38-47; at [www.vtpi.org/gentraf.pdf](http://www.vtpi.org/gentraf.pdf)
10. Todd Litman (2006), *Evaluating Accessibility for Transportation Planning*, Victoria Transport Policy Institute (www.vtpi.org); at [www.vtpi.org/access.pdf](http://www.vtpi.org/access.pdf)
11. Todd Litman (2007), *Guide to Calculating Mobility Management Benefits*, Victoria Transport Policy Institute (www.vtpi.org); at [www.vtpi.org/tdmben.pdf](http://www.vtpi.org/tdmben.pdf)
12. Todd Litman (2008), *Comprehensive Transport Planning: Best Practices For Evaluating All Options And Impacts*, VTPI (www.vtpi.org); at [www.vtpi.org/comprehensive.pdf](http://www.vtpi.org/comprehensive.pdf)
13. Mobility Management -Training Manual, e-atomium, Transport and mobility training for energy agencies and local actors. [www.e-atomium.org/IMG/pdf/mm\_manual.pdf](http://www.e-atomium.org/IMG/pdf/mm_manual.pdf)

Software

VISUM - Travel Demand Modelling <http://cgi.ptv.de/download/traffic/library/VISSIM%20Slideshow.pdf>

SUMO