UCLouvain

mlsmm2251

2025

Modelling of Transport Systems

The version you're consulting is not final. This course description may change. The final version will be published on 1st June.

5.00 credits	30.0 h	Q1

Teacher(s)	Jourquin Bart ;
Language :	French
Place of the course	Mons
Main themes	The objective of the course is to make students understand the importance of transport networks in the economy in general, with a focus on the supply chain. After a presentation of transportation networks concepts, the course explains the classical four stages modeling approach. More recent alternative techniques are then discussed, such as multi-agent simulation or "virtual networks". The course is mainly practice-oriented, focusing on a series of case studies that show how the modeling of transport networks is a valuable decision-making tool for studying very different issues such as congestion, the optimal location of facilities, modal shift, the impact of new transport infrastructure, etc.
Learning outcomes	**At the end of this learning unit, the student is able to :** **Contribution of the teachingunit to the LO (competency framework) of the program** With regard to the learning outcomes of the Master 120 in Management / Business Engineering programs, this teaching unit contributes contributes to the development and acquisition of the following skills: • 2.2 Master knowledge that is otherwise specialized in one or two areas of management: cutting-edge and recent knowledge and methods, resulting from scientific research. • 2.5. Contribute to the development of new knowledge in management. • 3.1. Conduct clear and structured analytical reasoning by applying and, adapting if necessary, scientifically sound conceptual frameworks and models to describe and analyze a concrete problem. • 3.2. Collect, select and analyze relevant information using rigorous, advanced and appropriate methods. • 3.5 Identify, based on the analysis and diagnosis, solutions that can be implemented in context and identify priorities for action. • 5.2. Situate and understand the functioning of an organization in its changing local and international socio-economic context; and discern strategic issues from operational issues and decisions. **Specific LO at the end of the teaching unit** On completion of this teaching unit, the student will be able to : • Describe the way in which he would model transport traffic of passengers or freight on a network presented in a case, based on the theoretical concepts covered in class. • Imagine new solutions to problems encountered when modeling a non-met example during the class. • Explain how to decompose a complex model by identifying sub-problems to be solved. • Collect the necessary data to solve of a concrete problem that is submitted to him. • Participate in the resolution of a complex case study, in which transportation networks are only an element. • Identify the different stakeholders in transportation networks, in the context of socio-economic analysis. • Interpret the outputs of a transport model in order to identify the socio-economic benefits of an infrastructure project.
Bibliography	ORTÚZAR J., WILLUMSEN L. (2011), Modelling Transport, 4 th ed., Wiley.
Faculty or entity in charge	CLSM

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Management	GESM2M	5		
Master [60] in Management	GESM2M1	5		
Master [120] in Business Management	GENT2M	5		
Master [120] : Business Engineering	INGE2M	5		
Master [120] in Management	GEST2M	5		
Master [120] : Business Engineering	INGM2M	5		
Master [120] in Management (with work-linked-training)	GESA2M	5		