

Advanced Topics in Traffic and Logistics (E084480)

Course size *(nominal values; actual values may depend on programme)*

Credits 4.0 **Study time 120 h**

Course offerings in academic year 2024-2025

A (semester 2) English Gent

Lecturers in academic year 2024-2025

Semanjski, Ivana TW18 lecturer-in-charge

Offered in the following programmes in 2024-2025

	crdts	offering
Bridging Programme Master of Science in Industrial Engineering and Operations Research(main subject Transport and Mobility Engineering)	4	A
Master of Science in Industrial Engineering and Operations Research(main subject Sustainable Mobility Analytics)	4	A
Master of Science in Industrial Engineering and Operations Research(main subject Transport and Mobility Engineering)	4	A

Teaching languages

English

Keywords

Trend analysis, Problem design, Integrated approaches

Position of the course

The course discusses current and novel trends in Transport, Mobility and Logistics. It looks deeper into innovative approaches to organize and manage traffic, mobility and logistics for long haul, last-mile and urban, both on the level of operations and services as well as the impact of new technology like cooperative, connected and automated mobility. This course will be organized in form of case-based lectures, including guest lectures, where various advanced topics and trends in traffic, mobility and logistics and their integration in holistic systems will be discussed.

Contents

The course covers topics like:

- Urban Mobility Management and Sustainable Mobility Planning
- Mobility user segmentation and stakeholder mapping
- Smart city data platforms, open data and neutrality
- CCAM: cooperative, connected and automated mobility
- Urban multimodal transportation planning
- Integrated city logistics and mobility

Initial competences

No formal requirements.

Final competences

- 1 The student should be able to understand and formulate the technical, operational and human needs of modern and future transport, mobility and logistics solutions;
- 2 The student should be able to define, formulate and argument problem statements and operational goals for holistic systems in traffic, mobility and logistics;
- 3 The student should be able to assess transport, mobility and logistics solutions on a system-level in different dimensions (technical, operational, economical, societal);
- 4 The student should be able to critically read, interpret and evaluate topical

scientific and non-scientific texts in this domain.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Group work, Lecture, Independent work

Extra information on the teaching methods

Cursus offered using blended learning principles. Slides, videos and additional learning material are offered via electronic learning platform. Group work where students develop a problem analysis of a current topic.

Study material

Type: Handbook

Name: Cavar Semanjski, I. Smart Urban Mobility Transport Planning in the Age of Big Data and Digital Twins. Elsevier, 2023.
Indicative price: € 120
Optional: yes
Language : English
Author : Cavar Semanjski, Ivana
ISBN : 978-0-12820-717-8
Number of Pages : 266
Online Available : Yes
Usability and Lifetime within the Course Unit : regularly
Usability and Lifetime after the Study Programme : regularly

Type: Handbook

Name: How to Monitor Sustainable Mobility in Cities? Literature Review in the Frame of Creating a Set of Sustainable Mobility Indicators
Indicative price: Free or paid by faculty
Optional: yes
Language : English
Author : Dominique Gillis, Ivana Semanjski, Dirk Lauwers
Number of Pages : 30
Online Available : Yes

Type: Handbook

Name: Towards user-centric transport in Europe: enablers of inclusive, seamless and sustainable mobility
Indicative price: € 120
Optional: yes
Language : English
Author : Beate Müller, Gereon Meyer
ISBN : 978-3-03038-030-4
Number of Pages : 268
Online Available : Yes
Usability and Lifetime within the Course Unit : not applicable
Usability and Lifetime after the Study Programme : occasionally

Type: Handbook

Name: Participatory Sensing, Opinions and Collective Awareness
Indicative price: € 105
Optional: yes
Language : English
Author : Vittorio Loreto, Muki Haklay, Andreas Hotho, Vito D.P. Servedio, Gerd Stumme, Jan Theunis, Francesca Tria
ISBN : 978-3-31979-823-3
Number of Pages : 405
Online Available : Yes

References

Towards user-centric transport in Europe: enablers of inclusive, seamless and sustainable mobility, B. Müller and G. Meyer, Eds. Springer, 2020.
Participatory sensing, opinions and collective awareness, Springer International

Publishing, 2017

D. Gillis, I. Semanjski, and D. Lauwers, "How to monitor sustainable mobility in cities? Literature review in the frame of creating a set of sustainable mobility indicators," *SUSTAINABILITY*, vol. 8, no. 1, 2016.

Course content-related study coaching

Assessment moments

end-of-term and continuous assessment

Examination methods in case of periodic assessment during the first examination period

Written assessment open-book

Examination methods in case of periodic assessment during the second examination period

Written assessment open-book

Examination methods in case of permanent assessment

Peer and/or self assessment, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Extra information on the examination methods

Periodic: written examination (open book) on topical insight and relations.

Non-periodic: group presentation and defense

Calculation of the examination mark

50% periodic, 50% non-periodic evaluation; student needs to pass both parts.

Facilities for Working Students

Group work can be adapted to individual assignment.