



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Sustainable transport [S1BZ1E>ZT]

Course

Field of study

Sustainable Building Engineering

Year/Semester

3/6

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

English

Form of study

full-time

Requirements

elective

Number of hours

Lecture

15

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

0

Number of credit points

1,00

Coordinators

dr inż. Jeremi Rychlewski

jeremi.rychlewski@put.poznan.pl

Lecturers

Prerequisites

KNOWLEDGE: Student beginning this course should: - have knowledge of basics of mathematics and physics; - know traffic rules; - have knowledge from course on architectural design. SKILLS: Student should be able to: - obtain information from literature and other properly selected information sources; - calculate using physical formulas; - read geodesic maps. SOCIAL COMPETENCIES: Student should: - understand ideas of common values; - understand basic ecological dependencies, presented on previous courses; - follow in daily academic life rules of culture and respect for others.

Course objective

To present knowledge and way of thinking on chosen aspects of sustainable development of transport network and sustainable transport behaviour.

Course-related learning outcomes

Knowledge:

Student acquires knowledge on requirements and methods for developing sustainable transport;

Student learns about a need to hierarchise and classify transport infrastructure;

Student acquires knowledge on designing separated and shared spaces, including need of handicapped

people.

Skills:

Student acquires an ability to hierarchize a transport network, aiming at sustainable transport values;
Student acquires skills to analyse urban and transport needs in accordance with sustainable development rules.

Social competences:

Student understands the need to proliferate the knowledge about sustainable transport, transfers the knowledge in a clear and easily comprehensible manner;

Student can realise how important is to take care of personal health and physical fitness.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

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The acquired knowledge is verified by a written colloquium done on the last lecture. The colloquium will be in a form of a multiple choice test with penalty for wrong answers, and questions of "list with a short description" type. With small number of students it is possible to change the form into an oral colloquium, requiring acceptance from the lecturer and majority of students. To pass the colloquium, students should acquire at least 50% of points. Activity during the lectures may be taken into account during the colloquium's score evaluation.

Grade scale: 50-60% 3,0; 60-70% 3,5; 70-80% 4,0; 80-90% 4,5; 90-100% 5,0.

Programme content

The module's programme covers:

- presentation of the ideas of sustainable development and sustainable transport;
- description of transport modes and their influence on environment;
- methods for shaping sustainable transport policy.

Course topics

1. Idea of sustainable development and sustainable transport, external costs in transportation;
2. Public transport modes, modal share and mode choice criteria;
3. Role of speed in sustainable transport;
4. Classification of roads, transport infrastructure hierarchy;
5. Spatial management of streets, segregation or shared space, universal design;
6. Traffic lights;
7. Intermodal transport.

Teaching methods

Informative lecture using multimodal presentation, with an occasional use of a blackboard. Short discussions on student observations will also be included.

Bibliography

Basic

1. Ieda H., Okata J.: Sustainable Urban Transport in an Asian Context. Springer 2010.
2. Manual on Uniform Traffic Control Devices, U.S. Dept of Transportation 2010.
3. Podowski J.: Transport w miastach. WKiŁ. 1988.
4. Rychlewski J.: Street network design for a sustainable mobility system. Transport Research Procedia 14 / 2016, str. 528-537.
5. Tolley R., Tolley R. S.: Sustainable transport. Cambridge 2003.
6. Victoria Transport Policy Institute - web page: www.vtpi.org
7. Wesołowski J.: Miasto w ruchu: przewodnik po dobrych praktykach w organizowaniu transportu miejskiego. ISO Łódź 2008.
8. Yi S.: Principles of railway location and design. Elsevier, Amsterdam 2018.

Additional

1. Bul R., Gadziński J., Rychlewski J.: Kierunki i standardy planowania metropolitalnego systemu transport. w: Mikuła Ł.: Integracja planowania przestrzennego w Metropolii Poznań – problemy, metody, osiągnięcia. Bogucki, Poznań 2016, str. 25-44.1.
2. Olszewski P., Suchorzewski W.: Samochód w śródmieściu. WKiŁ. 1983.
3. Dell R. et al.: Towards sustainable road transport. Academic Press.
4. Gaca S., Suchorzewski W., Tracz M.: Inżynieria Ruchu. WKiŁ. 2009 i późniejsze.
5. Materiały konferencji naukowych „Problemy komunikacyjne miast w warunkach zatłoczenia motoryzacyjnego”.
6. Rychlewski J.: Priorytet tramwajowy w Poznaniu. Archiwum Instytutu Inżynierii Lądowej 12/2012, str. 33-60.
7. Rychlewski J.: Street classification problems w: Modelling of change in transportation subsystems pod red. R. Janecki, S. Krawiec, Wyd. Politechniki Śląskiej, Gliwice 2011, str. 245-254.
8. Rychlewski J.: Experience of 17 years of public transport priority in Poznań, Poland. Proceedings of the 16th International IEEE Annual Conference on Intelligent Transportation Systems (ITSC 2013), The Hague, The Netherlands, October 6-9, 2013, str. 1882-1887.
9. Szczuraszek T.: Bezpieczeństwo ruchu miejskiego. WKiŁ. 2005.
10. Tracz M., Allsop R. E., Tarko A.: Skrzyżowania z sygnalizacją świetlną. WKiŁ. 1990.

Breakdown of average student's workload

	Hours	ECTS
Total workload	30	1,00
Classes requiring direct contact with the teacher	15	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	15	0,50