COURSE DESCRIPTION CARD - SYLLABUS

Course name
Urban rail transit [S2Trans1E-TrZ>SzTM]

Course

Field of study
Transport

Year/Semester
1/2

Area of study (specialization)
Sustainable Transport

Profile of study
general academic

Level of study
second-cycle

Course offered in
English

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
0

Other (e.g. online)
0

Tutorials
15

Projects/seminars
0

Number of credit points

3,00

Coordinators

dr hab. inż. Bartosz Firlik prof. PP
bartosz.firlik@put.poznan.pl

Lecturers

Prerequisites

Knowledge: The student has basic knowledge of the construction of rail vehicles and the organization of transport Skills: Student is able to solve specific problems appearing in technical systems Social competences: Student is able to cooperate in a group, assuming various roles and is able to determine the priorities important in solving tasks

Course objective

Getting knowledge about urban transport systems existing in Poland and worldwide, as well as about the construction, design and operation of urban rail transport vehicles (tramway, metro, train)

Course-related learning outcomes

Knowledge:
Student has a structured and theoretically founded general knowledge related to key issues in the field of transport engineering
Student has knowledge of development trends and the most important new achievements of means of transport and other selected, related scientific disciplines

Skills:
Student is able to obtain information from literature, databases and other sources (in Polish and English), integrate them, interpret and critically evaluate them, draw conclusions and formulate and exhaustively justify opinions
Student is able to use information and communication techniques used in the implementation of projects in the field of transport
Student is able, using among others conceptually new methods - to solve complex tasks in the field of transport engineering, including atypical tasks and tasks with a research component

Social competences:
Student understands the importance of using the latest knowledge in the field of transport engineering in solving research and practical problems
Student is aware of transferring the acquired knowledge to the public, makes efforts to make this information understandable, presents various solutions and points of view

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
The final grade takes into account both the grade from the written exam as well as the student"s activity during the classes and preparation for them

Programme content

The development of urban transport in Poland and abroad. Main tasks and needs of urban rail transit. Manufacturers, research institutes and specific rail rolling stock construction and design. Classification of light rail vehicles. Principles of operation and general information about the design and construction of light rail vehicles. Structural and operating requirements of light rail vehicles. Advantages and disadvantages of various transport systems and vehicles. Presentation of the loads acting on the vehicle and its components. Presentation of the principles of design and operation of modern light rail vehicles. Presentation of transport systems developed in Poland and worldwide. European Union and local transport authorities policies toward urban rail transport. Major problems of urban transport in European cities.

Course topics

The topics of the classes focus on vehicles and urban transport systems, in particular:
- the role of urban rail transport in modern cities
- European Union policy on urban transport
- quality issues in public transport
- rolling stock policy of 21st century cities
- modern urban transport infrastructure
- modern urban rail transport vehicles

Teaching methods

Lecture: multimedia presentation
Tutorials: solving problems

Bibliography

Basic
1. Green Paper - Towards a new culture for urban mobility, Brussels 2007, COM/2007/0551 final
2. Urban Rail Transit open access journal
3. Bernick M. & Cervero R., Transit villages in the 21st century, McGraw-Hill, Incorporated 1997
Additional
1. Baum-Snow N., Kahn M., & Voith R. (2005). Effects of Urban Rail Transit Expansions: Evidence from Sixteen Cities, 1970-2000. Brookings-Wharton Papers on Urban Affairs, 147-206. http://www.jstor.org/stable/25067419

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	30	1,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	45	1,50