



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Urban Rail Transit

### Course

Field of study

Year/Semester

Transport

1/2

Area of study (specialization)

Profile of study

Railway Transportation

general academic

Level of study

Course offered in

Second-cycle studies

polish / english

Form of study

Requirements

full-time

elective

### Number of hours

Lecture

Laboratory classes

Other (e.g. online)

30

0

0

Tutorials

Projects/seminars

15

0

### Number of credit points

3

### Lecturers

Responsible for the course/lecturer:

dr hab. inż. Bartosz Firlik

Responsible for the course/lecturer:

mgr inż. Julian Kominowski

email: bartosz.firlik@put.poznan.pl

tel: 61 6652012

Wydział Inżynierii Lądowej i Transportu

ul. Piotrowo 3, 60-965 Poznań

### Prerequisites

Knowledge: The student has basic knowledge of the construction of rail vehicles and the organization of transport

Skills: The student is able to solve specific problems appearing in technical systems

Social competences: in technical systems: The student is able to cooperate in a group, assuming various roles in it. The student is able to determine the priorities important in solving the tasks set before him.

### 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

1. Has a structured and theoretically founded general knowledge related to key issues in the field of transport engineering
2. Has knowledge of development trends and the most important new achievements of means of transport and other selected, related scientific disciplines

#### Skills

1. Can 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
2. Can use information and communication techniques used in the implementation of projects in the field of transport
3. Can - using, among others conceptually new methods - solve complex tasks in the field of transport engineering, including atypical tasks and tasks with a research component

#### Social competences

1. Understands the importance of using the latest knowledge in the field of transport engineering in solving research and practical problems

### Methods for verifying learning outcomes and assessment criteria

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.

### Teaching methods

1. Lecture with multimedia presentation
2. Exercises - solving problems

### Bibliography



Basic

1. Wesołowski J.: Miasto w ruchu. Dobre praktyki w organizowaniu transportu miejskiego, Instytut Spraw Obywatelskich, Łódź 2008.
2. Wesołowski J.: Transport miejski. Instytut Spraw Obywatelskich, Łódź 2008.
3. Swolkień O.: Polityka transportowa. Instytut Spraw Obywatelskich, Łódź 2008.

Additional

Zielona Księga - W kierunku nowej kultury mobilności w mieście (Bruksela, wrzesień 2007 r., COM (2007) 551

Zaborowski Ł.: Tramwaj dla polskich miast. Instytut Sobieskiego 2018

**Breakdown of average student's workload**

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	45	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	30	1,0

<sup>1</sup> delete or add other activities as appropriate