COURSE DESCRIPTION CARD - SYLLABUS

Course name

Theory of rail vehicles movement

Course

Field of study

Construction and Exploitation of Means of Transport

Year/Semester

3/6

Area of study (specialization)

Mass Transport Vehicles

Profile of study

general academic

Level of study

First-cycle studies

Course offered in

polish

Form of study

full-time

Requirements

compulsory

Number of hours

Lecture

30

Laboratory classes

15

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

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tel. 61-665 2017

Wydział Inżynierii Lądowej i Transportu

ul. Piotrowo 3, 60-965 Poznań

Responsible for the course/lecturer:

Prerequisites

Knowledge:

The student has some basic knowledge about the place of railway transport in the economic system.

The student knows and understands the basic methods and tools, practical from piece band, hard, especially movement.

The student knows the main tasks of railway transportation in the area of functioning and development of enterprises, regions and countries.

Skills:

The student is able to use the concepts and methods in the description of technical problems.

The student can use the acquired knowledge for the analysis of specific phenomena and processes occurring in technical systems.

The student can solve concrete problems in technical systems.

Social competencies:

The student can work in a group, taking in her different roles.

The student determines the priorities is important in solving the set tasks.

Student showing independence in solving problems, acquisition and improvement of acquired knowledge and skills.

Course objective

The aim of the subject is to provide students with information on the organization and the theory of motion of the train.

Students receive knowledge and skills in the field of functioning of electric traction and internal combustion, especially power transmission through the system drive to the wheels, problems of modeling and simulation using the modeling of movement of a train, learn the rules disable the conduct of the train. They provide basic information about the functioning and the role of transport in national (regional) and international transportation system.

Course-related learning outcomes

Knowledge

He has a structured basic knowledge of the main branches of technical mechanics: kinematics and dynamics of the material point and rigid body.

Skills

Can acquire information from literature, the internet, databases and other sources. Can integrate the information obtained and interpret conclusions and create and justify opinions.

Social competences

Is ready to critically evaluate your knowledge and content you receive

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Final test of the lectures

Programme content

The process of movement of a train in the system of exploitation of Railways. Mathematical model of the process, process variables (status, management, physical), restrictions and violations. Problems of

optimization of the process of movement, quality criteria and limitations. Characteristics of machines, plants and thermal power, processing and transmission of energy drive, traction characteristics of diesel locomotives. Elements of computer simulation of motion (us) and define the conduct of the train.

The functioning and the role of transport in national (including regional and international system of transportation. External effects of transport, including external costs.

Teaching methods

Lecture with multimedia presentation

Bibliography

Basic

1. MADEJ J.: Teoria ruchu pojazdów szynowych. Of. Wyd. Pol. Warsz. 2004.

2. KWAŚNIKOWSKI J.: Modelowanie i symulacja komputerowa procesu ruchu pociągu. Wyd. PP (Rozprawy PP, nr 264),1992.

Additional

1. KACPRZAK J., KOCZARA W.: Podstawy napędu elektrycznych pojazdów trakcyjnych. WKŁ, Warszawa 1990.

Breakdown of average student's workload

	Hours	ECTS
Total workload	37	2,0
Classes requiring direct contact with the teacher	34	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	10	1

[1] delete or add other activities as appropriate