



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Road vehicles [S1Trans1>PD]

Course

Field of study

Transport

Year/Semester

3/5

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

full-time

Requirements

compulsory

Number of hours

Lecture

15

Laboratory classes

15

Other

0

Tutorials

0

Projects/seminars

0

Number of credit points

3,00

Coordinators

dr inż. Jerzy Kupiec

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Lecturers

Prerequisites

The student has a basic knowledge of machine science, mechanics, the basics of machine construction and the laws of physics. The student is able to integrate the obtained information, interpret it, draw conclusions, read diagrams and technical drawings. The student is aware of the role of means of transport in human economic activity.

Course objective

Providing students with basic information on the varieties, construction and operation of the basic systems, mechanisms and assemblies of a motor vehicle and their importance for the correct and safe functioning of the vehicle.

Course-related learning outcomes

Knowledge:

The student has an ordered, theoretically founded general knowledge of technology, transport systems and various means of transport

The student has ordered and theoretically founded general knowledge in the field of key issues of technology and detailed knowledge in the field of selected issues in this discipline of transport

engineering

Skills:

The student is able to make a critical analysis of the functioning of transport systems and other technical solutions and to evaluate these solutions, including: is able to effectively participate in the technical inspection and assess the transport task from the point of view of non-functional requirements, has the ability to systematically conduct functional tests

The student is able to design means of transport with appropriate external requirements (e.g. regarding environmental protection)

Social competences:

The student understands that in technology, knowledge and skills very quickly become obsolete

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 knowledge acquired during the lecture is verified by a written exam.

Mandatory individual reports on laboratory activities. Final credit of laboratory classes.

Programme content

Types and properties of vehicle drive systems.

Tasks, structure, principle of operation, design variants and properties of: main couplings, gear boxes, drive shafts, main gears, differentials, drive shafts, wheel hubs. Multi-axis drives, construction, properties.

Vehicle tires.

Types and properties of suspension systems. Tasks, structure, varieties, properties and scope of application of leading and elastic elements, shock absorbers and stabilizers.

Types and properties of steering systems. Conditions for the car's transverse and longitudinal stability.

Tasks, structure, types and properties of steering mechanisms and steering linkages

Vehicle braking - the course of the process. Types and properties of braking systems. Tasks, structure, types and properties of brakes and brake actuation mechanisms.

Tasks, types, properties and fields of application of support structures. Construction of frame systems and self-supporting bodies.

Course topics

none

Teaching methods

Lecture with multimedia presentation.

Laboratory classes: independent performance of tasks given by the teacher - practical exercises.

Bibliography

Basic

Prochowski L.: Mechanika ruchu. WKŁ, W-wa, 2005

Jackowski J., Łęgiel J., Wieczorek M.: Samochody osobowe i pochodne. WKŁ, W-wa, 2011

Prochowski L., Żuchowski A.: Samochody ciężarowe i autobusy. WKŁ, W-wa, 2004

Reimpell J., Betzler J.: Podwozia samochodów. Podstawy konstrukcji. WKŁ, W-wa, 2003

Zajac M.: Układy przeniesienia napędu samochodów ciężarowych i autobusów. WKŁ, W-wa, 2003

Gabryelewicz M.: Podwozia i nadwozia pojazdów samochodowych cz. 1/2. WKŁ, W-wa, 2018

Additional

Heising B., Ersoy M.: Chassis Handbook. Vieweg + Teubner Verlag, Wiesbaden, 2011

Meywerk M.: Vehicle dynamics. John Wiley & Sons Ltd, Chichester, 2015

Breakdown of average student's workload

	Hours	ECTS
Total workload	70	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)	40	1,50