GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Motor vehicles, PG_00056108		
Field of study	Mechatronics		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2026/2027
Education level	first-cycle studies	Subject group	
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	5	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Division of Mechanical Vehicles and Military Technology -> Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology -> Faculties of Gdańsk University of Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Grzegorz Ronowski	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	0.0	0.0	0.0	30

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	30	0.0	0.0	30

Subject objectives

The aim of the course is to provide students with basic knowledge in the field of construction and general principles of designing motor vehicle drive systems .

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U05] is able to use properly chosen tools to compare design solutions of elements and mechatronics systems according to given application and economic criteria (e.g. power demand, speed, costs)	The student knows the construction of typical types of drive systems used in motor vehicles. It is able to choose the right layout due to the usage criteria.	[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject [SU1] Assessment of task fulfilment

Subject contents

Course content – lecture

General construction of the car . Engine characteristics and necessary drive mechanisms . Drive mechanisms . Clutches - types used . Design , operation and calculation of friction couplings . Friction clutch components . Switching mechanisms . Automatic control systems . Torque converters . Stepped gearboxes . Synchronizers and gear shifters . Planetary gearboxes . Automate shifting . Additional gearboxes . Drive shafts and joints . Drive shaft systems . Critical shaft speed . Joint theory and design solutions . Drive bridges : types , construction and calculation . Differentials , half -axles and wheel bearings .

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Colloquium	50.0%	100.0%

Recommended reading

Basic literature

Studziński K.: Samochód teoria, konstrukcja i obliczanie

Jaśkiewicz Z.: Projektowanie układów napędowych pojazdów samochodowych.

	Supplementary literature	Reimpel J.: Budowa samochodów Podstawy Konstrukcji Zając M.: Układy przeniesienia napędu samochodów ciężarowych i autobusów
	eResources addresses	
Example issues/ example questions/ tasks being completed	1 . Differential design . 2 . Construction of the front combined drive system . 3 . Independent suspension working principle .	
Practical activites within the subject	Not applicable	

Document generated electronically. Does not require a seal or signature.