GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Wheels and Tyres, PG_00055516		
Field of study	Mechanical Engineering		
Date of commencement of studies	October 2021	Academic year of realisation of subject	2023/2024
Education level	first-cycle studies	Subject group	Optional subject group Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish -
Semester of study	6	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Institute of Mechanics and Machine Design -> Faculty of Mechanical Engineering and Ship Technology		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Jerzy Ejsmont	
	Teachers	dr inż. Sławomir Sommer prof. dr hab. inż. Jerzy Ejsmont	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	15.0	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	8.0	37.0	75

Subject objectives

The aim of the course is to familiarize students with the history, construction and properties of car tires and wheels.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_U05] is able to plant an experiment within the range of measuring the basic operating parameters of mechanical devices using a specialized equipment, interpret the results and reach the correct conclusions	Ability to conduct development research and measurements related to car tires.	[SU1] Assessment of task fulfilment
[K6_W08] possesses basic knowledge including the methodology of designing machine parts, mechanical devices, selection of construction materials, manufacturing and operation, with the lifetime cycle	Ability to select tires, their handling and verification.	[SW1] Assessment of factual knowledge

Subject contents

Background information. History of wheel and tire development. Types of tire construction, sizes and markings, conditions for admission to traffic in Europe and the USA. Mechanics of interaction between the tire and the surface. Characteristics of radial and diagonal tires. Grip, skid, rolling resistance. Selection of tires for the vehicle and operating conditions. Winter and summer tires. Studs, snow chains and protective chains. Tire production technology. Cord production, tire assambling, molding and vulcanization. Basics of tire operation. Selection of inflation pressure, maintaining proper loads, repairing tires. Construction of car wheels - wheels for passenger cars, wheels for trucks. Unconventional wheels and car tires.Measurements of basic tire parameters: skid resistance, stiffness, rolling resistance, noise.

Prerequisites and co-requisites

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Completion of laboratory exercises</td><td>80.0%</td><td>50.0%</td></tr>
<tr><td>Passing test</td><td>51.0%</td><td>50.0%</td></tr>
</table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>U. Sandberg, J. Ejsmont: Tire/road noise - reference book

J.Jaworski, Ogumienie pojazdów samochodowych</td></tr>
<tr><td>Supplementary literature</td><td>-</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">-</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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