



Subject card

Subject name and code	Wheels and Tyres, PG_00055516						
Field of study	Mechanical Engineering						
Date of commencement of studies	October 2023	Academic year of realisation of subject			2025/2026		
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						
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_W08] possesses 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		
	[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		
Subject contents	<p>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 assembling, 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.</p>						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Completion of laboratory exercises	80.0%	50.0%
	Passing test	51.0%	50.0%
Recommended reading	Basic literature	U. Sandberg, J. Ejsmont: Tire/road noise - reference book J.Jaworski, Ogumienie pojazdów samochodowych	
	Supplementary literature	-	
	eResources addresses	Adresy na platformie eNauczenie:	
Example issues/ example questions/ tasks being completed	-		
Work placement	Not applicable		