

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Motor Vehicles		Code 1010611251010610462
Field of study Transport	Profile of study (general academic, practical) (brak)	Year /Semester 3 / 5
Elective path/specialty Road Transport	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 4 Classes: - Laboratory: 1 Project/seminars: -		No. of credits 6
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 6 100% 6 100%
Responsible for subject / lecturer: dr inż. Andrzej Wołyński email: andrzej.wolynski@put.poznan.pl tel. 61 665 2236 Maszyn Roboczych i Transportu ul. Piotrowo 3, 60-965 Poznań		Responsible for subject / lecturer: dr inż. Hubert Pikoś email: hubert.pikosz@put.poznan.pl tel. 61 665 2709 Maszyn Roboczych i Transportu ul. Piotrowo 3, 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Student possesses basic knowledge about machines, mechanics, construction of the machines and physics laws
2	Skills	Student is able to integrate gathered information, interpret them and make conclusion, read the schematics and technical drawings
3	Social competencies	Student is aware of roles played by means of transport in the human economics
Assumptions and objectives of the course: Teaching students about the construction and work of gears and mechanisms in cars		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Knows the functions, construction and properties of different kinds of basic car mechanisms - [K1A-W17, K1A-W20, K1A-W24]		
2. Knows the scope of appliance of different kinds of basic car mechanisms - [K1A-W17, K1A-W20, K1A-W24]		
3. Possesses basic knowledge of theory of the car movement - [K1A-W17, K1A-W20, K1A-W24]		
4. Knows construction and functions of security and traction control mechanisms - [K1A-W17, K1A-W20, K1A-W24]		
5. Knows the influence of different mechanisms on security of car movement - [K1A-W17, K1A-W20, K1A-W24]		
Skills:		
1. Can describe roles, functions, construction and function variables, properties and scope of appliance of various mechanisms and main systems in cars - [K1A-U03, K1A-U15, K1A-U17]		
2. Knows the basic variables influencing traction properties and movement security - [K1A-U03, K1A-U15, K1A-U17]		
Social competencies:		
1. Can connect various cars with various social activities - [T1A-K01]		
2. Knows the influence of cars on people and environment - [T1A-K02]		
3. Is able to broaden knowledge in the field of car construction and properties, as well as their elements - [T1A-K03]		

Assessment methods of study outcomes		
Oral and written exam, laboratory passed based on passing of each module		
Course description		
<p>Movement resistance. Kinds and properties of power systems. Tasks, construction, function properties, construction types and properties of: clutches, gearboxes, camshafts, transmissions, differentials, half-shafts, hubs. Multiple shafts drives - construction and properties. Types and properties of gears. Tasks, construction, function properties, construction types and properties of: shock absorbers, stabilizers, types and properties of steering gears. Conditions of transverse and longitudinal stability in cars. Tasks, construction, types and properties of steering mechanisms and turning mechanisms. Legal requirements applied to construction and function of braking gears. Types and properties of braking gears. Tasks, construction, function properties, construction types and properties of brakes and brakes starting mechanisms. Additional brakes. ABS, ASR and ESP gears: tasks, construction, action. Task, types, properties and application of carrying gears. Construction of frames and bodies. Legal requirements, lighting types, types and properties of different light sources. Active, passive and ecological security - factors influencing every type of security.</p>		
Basic bibliography:		
<ol style="list-style-type: none"> 1. Reimpell J., Betzler J.: Podwozia samochodów ? Podstawy konstrukcji. WKŁ, W-wa, 2003. 2. Zieliński A.: Konstrukcja nadwozi samochodów osobowych i pochodnych. WKŁ, W-wa, 2003. 3. Prochowski L., Żuchowski A.: Samochody ciężarowe i autobusy. WKŁ, W-wa, 2004. 4. Zajac M.: Układy przeniesienia napędu samochodów ciężarowych i autobusów. WKŁ, W-wa, 2003. 		
Additional bibliography:		
<ol style="list-style-type: none"> 1. Seria Auto Expert: Budowa i eksploatacja pojazdów. Tom I ? Działanie zespołów i podzespołów. Praca Zbiorowa, Vogel, Wrocław, 2004. 2. Czasopisma: ?Transport ? technika motoryzacyjna? oraz ?Auto ? technika motoryzacyjna?. 3. Orzełowski S.: Budowa podwozi i nadwozi samochodowych. WSiP, W-wa, 1999. 4. Wołyński A.: Materiały do wykładu z przedmiotu ?Budowa Samochodów?. 		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in lectures	60	
2. Learning of lectures content	15	
3. Consultations	2	
4. Preparation for the exam	15	
5. Participation in the exam	2	
6. Preparation for laboratories	15	
7. Participation in laboratories	15	
8. Learning of laboratories content/Report	28	
9. Consultations	2	
10. Preparation for final test	2	
11. Participation in final test	1	
Student's workload		
Source of workload	hours	ECTS
Total workload	158	6
Contact hours	83	3
Practical activities	65	3