

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Ecology of Transport		Code 1010612311010620632
Field of study Transport	Profile of study (general academic, practical) general academic	Year /Semester 1 / 1
Elective path/specialty Logistics of Transport	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: Second-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 2 Classes: - Laboratory: - Project/seminars: -		No. of credits 1
Status of the course in the study program (Basic, major, other) other		(university-wide, from another field) university-wide
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 1 100% 1 100%
Responsible for subject / lecturer: Dr hab inż. Paweł Fuć, prof PP email: pawel.fuc@put.poznan.pl tel. (61) 665 2045 Wydział Inżynierii Transportu ul. Piotrowo 3 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	The student should have general knowledge in chemistry, physics and mathematics. In addition, he should have knowledge of the construction of the vehicle and the operation of the internal combustion engine. He should have general knowledge of environmental hazards.
2	Skills	The student is able to integrate the obtained information, make their interpretation, draw conclusions, formulate and justify opinions, has general knowledge of health and safety.
3	Social competencies	The student is aware of the risks associated with the emission of harmful compounds to the atmosphere and is aware of the ecological nature of negative social behavior on health and human safety in transport and industry.
Assumptions and objectives of the course: Getting to know the subject of ecology in industry and motorization; general knowledge in the field of threats related to human activity now and possible effects in the future.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. 1. Knows the classification of harmful and toxic compounds. - [- [K1A_W03]] 2. 2. Knows the regulations related to the emission of harmful substances of exhaust gases. - [- [K2A_W21]] 3. 3. Knows the methods of preventing the emission of harmful substances into the atmosphere. - [- [K2A_W20]] 4. 4. Knows the general outline of ecological conditions of means of transport. - [- [K2A_W20]]		
Skills:		
1. 1. Can classify vehicle categories. - [- [K2A_U09]] 2. 2. Can analyze the factors shaping the environmentalism in transport. - [- [K2A_U09]] 3. 3. Can analyze the toxicity of exhaust and waste gases based on literature. - [- [K2A_U14]] 4. 30/5000 4. Is able to count emission tests. - [- [K2A_W20]]		
Social competencies:		
1. The possibility of shaping ecological awareness in the social environment. - [- [K2A_K01]] 2. Awareness of social threats in the aspect of environmental protection. - [- [K2A_K02]]		
Assessment methods of study outcomes		

Test of the possession of messages in the field of formation of harmful compounds, structures of standards of toxicity of exhaust and waste gases. Two tests during the semester.		
Course description		
Lecture: classification of exhaust gas toxicity standards, classification of drive systems, basics of ecology in transport; basic knowledge of exhaust gas cleaning systems; environmentally friendly technologies in industry and transport.		
Basic bibliography:		
1. Jerzy Merkisz, Paweł Fuć, Piotr Lijewski, Fizykochemiczne aspekty budowy i eksploatacji filtrów cząstek stałych. Poznań 2016.		
2. Wojciech Serdecki, Badania silników spalinowych. Wyd. Politechniki Poznańskiej, Poznań 2012.		
3. Merkisz J., Pielecha I., Alternatywne napędy pojazdów. Wydawnictwo Politechniki Poznańskiej, Poznań 2006.		
4. Merkisz Jerzy, Mazurek Stanisław, Pokładowe Systemy Diagnostyczne Pojazdów Samochodowych. Wydawnictwa Komunikacji i Łączności WKŁ, 2006.		
Additional bibliography:		
1. Wojciech Serdecki, Badania silników spalinowych. Wyd. Politechniki Poznańskiej, Poznań 2012.		
Result of average student's workload		
Activity	Time (working hours)	
1. Przygotowanie do wykładu	5	
2. Udział w wykładzie	15	
3. Utrwalenie treści wykładu	5	
4. Konsultacje do wykładu	1	
5. Przygotowanie do zaliczenia wykładu	5	
6. Przygotowanie do ćwiczeń	5	
7. Udział w ćwiczeniach	15	
8. Utrwalanie treści ćwiczeń	5	
9. Konsultacje do ćwiczeń	15	
10. Przygotowanie do zaliczenia ćwiczeń	5	
11. Przygotowanie do ćwiczeń laboratoryjnych	1	
12. Udział w ćwiczeniach laboratoryjnych	5	
13. Utrwalanie treści ćwiczeń laboratoryjnych i sprawozdanie	10	
14. Konsultacje do ćwiczeń laboratoryjnych	15	
Student's workload		
Source of workload	hours	ECTS
Total workload	30	1
Contact hours	30	1
Practical activities	0	0