

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Recycling of transport means		Code 1010612211010612411
Field of study Transport	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 1
Elective path/specialty Road 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: 1 Classes: - Laboratory: - Project/seminars: -		No. of credits 1
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 %) 1 100% 1 100%
Responsible for subject / lecturer: dr hab. Agnieszka Merkisz-Guranowska email: agnieszka.merkisz-guranowska@put.poznan.pl tel. 61 647 59 58 Faculty of Working Machines and Transportation ul. Piotrowo 3 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Student has a basic knowledge of design and construction of vehicles, the recycling network organisation and the technologies of recycling
2	Skills	Student is able to associate and integrate the information, draw conclusions, formulate and justify opinions
3	Social competencies	Student is able to do a literature research and knows the rules of discussion
Assumptions and objectives of the course: Improving knowledge of the vehicle recycling technologies and network organization including legal, technical, economic and social context		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Has the knowledge of legal regulations relating to recycling - [K2A_W22] 2. Has the knowledge of the rules of recycling network organization - [K2A_W22] 3. Has the knowledge of indicators to assess recycling network efficiency - [K2A_W22] 4. Has the knowledge of the factors affecting the efficiency of the vehicle recycling process - [K2A_W22]		
Skills:		
1. Is able to characterize the risks associated with an inadequate vehicles treatment - [K2A_U01] 2. Is able to characterize the organization of the vehicle recycling network - [K2A_U01] 3. Is able to assess the importance of economic operators, particularly the vehicles? manufacturers, in the proper recycling process - [K2A_U01]		
Social competencies:		
1. Is aware of the risks associated with the inadequate treatment of vehicles and understands the need for adequate recovery - [K2A_K02] 2. Is able to develop his knowledge in the field of end-of-life vehicle recycling - [K2A_K01] 3. Is able to formulate opinions on treatment of end-of-life vehicles - [K2A_K02]		

Assessment methods of study outcomes		
Average rating taking into account assessment of the student activity during lectures and a written final test.		
Course description		
<p>1. Legal regulations: Directive 2000/53/EC on end-of life vehicles. Polish law on recycling of end-of-life vehicles and basic regulation to the Act.</p> <p>2. Network organization: Recycling system in Poland - scope of the problem (size of the carpark, age structure, number of end-of-life vehicles). Network of collection points, dismantlers, industrial shredders and recycling facilities.</p> <p>3. Recycling solutions in the European Union: Size of the fleet, its structure and the number of end-of-life vehicles. Legal constraints. Models of organization and financing of recycling network. Comparison of the technical infrastructure. Assessment of the efficiency of the network.</p> <p>4. Economic and ecological aspects of recycling : Cost for vehicle manufacturers, users and the public budget. Environmental costs and benefits.</p> <p>5. Role of the manufacturers: eco-design, involvement in recycling network organization.</p> <p>6. Development of the vehicle recycling in Poland: Problems of the recycling network, operation of the shadow economy, public awareness of recycling.</p>		
Basic bibliography:		
<p>1. Merkiż-Guranowska A., Recykling samochodów w Polsce, Instytut Technologii Eksploatacji, Radom 2007.</p> <p>2. Czasopismo Recykling</p>		
Additional bibliography:		
<p>1. Osiński J., Żach P., Wybrane zagadnienia recyklingu samochodów, Wydawnictwo Komunikacji i Łączności, Warszawa 2009.</p> <p>2. Sawwa R., Recykling samochodów. Ekologia, Prawo, Praktyka, Perspektywy, Przemysłowy Instytut Automatyki i Pomiarów, Warszawa 2001.</p> <p>3. Oprzędkiewicz J., Stolarski B., Technologia i systemy recyklingu samochodów, Wydawnictwa Naukowo-Techniczne, Warszawa 2003.</p> <p>4. Merkiż-Guranowska A., Aspekty rozwoju recyklingu, Instytut Technologii Eksploatacji, Radom 2005.</p>		
Result of average student's workload		
Activity	Time (working hours)	
1. Preparation for lectures	5	
2. Participation in lectures	15	
3. Preparation for the final test	5	
4. Participation in the final test	2	
Student's workload		
Source of workload	hours	ECTS
Total workload	27	1
Contact hours	17	1
Practical activities	0	0