

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Vehicle Repairing		Code 1010611261010610437
Field of study Transport	Profile of study (general academic, practical) (brak)	Year /Semester 3 / 6
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: 2 Classes: 1 Laboratory: 1 Project/seminars: -		No. of credits 4
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 %) 4 100% 4 100%
Responsible for subject / lecturer: Marian Jósko, Assoc. Prof., PhD (Eng.), DSc email: marian.josko@put.poznan.pl tel. 61 665 2247 Faculty of Machines and Transport ul. Piotrowo 3, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge in the range of physics and mechanics as well as a structure and maintenance of motor vehicles, particularly in their servicing
2	Skills	Ability to selection, integration and interpretation of obtained information and skills in conclusion and opinion formulation
3	Social competencies	Consciousness of importance and reality of non-technical aspects and effects of repair activity in the case of motor vehicles
Assumptions and objectives of the course: An acquaintance with general problems of maintenance, especially with detailed repair technologies of same important assemblies of an engine, chassis, body and with the selected equipment of an automotive vehicle.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Knows a basic notion and essence of repair as a method of efficiency restoration of road vehicles and their elements - [K1A_W15]		
2. Has a knowledge involving the repair systems, kinds and organisational aspects of repair of road transport means - [K1A_W15]		
3. Knows a technology of a major repair of the assemblies of transport means in operational arrangement - [K1A_W15]		
4. Has a knowledge including the meaning of verification of physical condition of parts in the repair process - [K1A_W15]		
5. Knows the main principles of repair of some important assemblies of engine, chassis, body and equipment of the road vehicles - [K1A_W15]		
Skills:		

<p>1. Is able to point the basic reasons determined the repairing of means of a road transport - [K1A_U14-15]</p> <p>2. Is able to undertake an organisational decision connected with the repairing of a fleet of road transport means - [K1A_U14-15]</p> <p>3. Has the ability to carry out the general overhaul of a vehicle assemble with the respecting of operational procedures - [K1A_U14-15]</p> <p>4. Is able to carry out a repairing (emergency or major) of the most important assemblies of an engine and road vehicle - [K1A_U14-15]</p> <p>5. Is able to make a decision in the range of selection of a repair workshop and to assure the main requirements of an industrial safety. - [K1A_U14-15]</p>
<p>Social competencies:</p> <p>1. Has an awareness of social meaning of vehicle repairing as a form of maintenance of movable assets of a transport company - [K1A_K06]</p> <p>2. Is able to point onto most important social factors influenced the quality of vehicle repairs - [K1A_K06]</p> <p>3. Is able to anticipate the needs and expectations of customers in the range of vehicle repairs - [K1A_K05]</p> <p>4. Is able to develop by one-self his knowledge in the scope of repairing of road transport means. - [K1A_K01]</p>

<p>Assessment methods of study outcomes</p>
<p>Attestation of the laboratories and classes, confirmed the ability to application of principles and operations of repair, obtained during lectures and needed for repairing of an engine assemblies and chassis of a car as well as a competence in determination of the repair range and in verification of the vehicle parts.</p> <p>Credit with the course by method of written check the basic knowledge connected with repairing of the road transport means and its technology, with regard of the knowledge in the field of verification, quality control, European directives, home instructions and modern organisational forms of repairing realisation in the case of individual and collective means of road transport.</p>
<p>Course description</p>
<p>Introduction and organization of the subject ? basic notions connected with repair of automotive vehicles, an explanations of the need of the repair of unserviceable vehicles, determined by failures, damages of their elements and faults, extremely worn and degraded parts and materials as well as by the assuring of the maintenance a fleet of vehicles and their availability to carry out of transport tasks</p> <p>Genesis, systems and principles of vehicle repair ? an explanation of an influence of some main factors on wear of parts and serviceability of vehicles; some kinds of repair and methods their organisation against a background of the native repair system and existing technical bases of motor transport</p> <p>Outsourcing of a fleet vehicles repairing ? contemporary methods of repair organisation of a fleet of vehicles; some possibilities of owners and leaseholders in the field of fleets repairing, contracts and repair packages; repair order into the authorised or independent repair workshops, according to outsourcing policy; consequences of the directive of EU ? an old and a new BER in the range of repair, insurance and the repairing of communication damages</p> <p>Operational structure of repairing process ? discussion the major repair process and some main its operations; operations and treatments of the general overhaul; explanation of the role of a assembly-disassembly in repair process; presentation the washing and cleaning operations of vehicle parts in the repair process, characteristic of washing and cleaning machines, their kinds and an appropriation; routine and running repairs</p> <p>Verification of vehicle parts ? stages and methods of verification; main criteria of part qualifications during verification; sensory verification in some examples; instruments and devices dedicated for specific verifying; an application some non-destructive methods to verification of the parts; detailed treatment of verification of selected part of automotive vehicles</p> <p>Quality of vehicle repair ? destructive processes versus a quality of vehicle; some models of repair quality of motor vehicles; an analysis of the factors determined the quality and efficiency of repairs; systems of evaluation of the repair quality; some possibilities of technical control of repair quality; case study of quality problem</p> <p>Technological processes of vehicle repair ? general schemas of repair; processing documentation: technical, maintenance and repair in the case of motor vehicles; the role of a diagnostics and inspection in the repair processes</p> <p>Technology of repair of assemblies and mechanisms ? presentation an example of repair of selected assemblies or equipment of motor vehicles with determination of the cause of repair; an assembly stands; repair of the engine; repair of the brake systems; repair of turbocharger; repair of the final drive and differential gear of the vehicle; repair of steering and suspension systems of automotive vehicles</p> <p>After accidental repairs of vehicle bodies ? main purposes and tasks of after accidental repairs; technologies applied in case of car body repairs, sheet-metal and paint shops and their equipment; technology of car-body repair; technology of renovate lacquer in varnish manufacture; renovate materials</p> <p>Problems of safety in vehicle repair ? requirements concerning of a condition and an equipment of the bases of automotive transport; some functions of the vehicle depot, station and repair workshops in the range of repair services; an identification of treats during vehicle repairs realisation and some ways of limitation of their effects; main principles of an industrial safety on repair work-stands.</p>

Basic bibliography:		
1. Kozłowski M. (red.): Budowa i eksploatacja pojazdów, t. II ? Obsługa, diagnostyka i naprawa zespołów i podzespołów. Wyd. Vogel Business Media, Wrocław, 2006.		
2. Trzeciak K.: Wyposażenie warsztatów samochodowych. Wyd. Auto, Warszawa, 2005.		
3. Uzdowski M., Abramek K., Garczyński K.: Pojazdy samochodowe. Eksploatacja techniczna i naprawa. WKiŁ, Warszawa, 2003.		
4. Livesey W.A., Robinson A.: The repair of vehicle bodies. Elsevier, London, New York, Tokyo, 2005.		
5. Lewicki J.: Wybrane zagadnienia technologii obsługi i napraw. Wyd. Uczelniane Politechniki Szczecińskiej, Szczecin, 1990.		
Additional bibliography:		
1. Orzełowski S.: Naprawa i obsługa pojazdów samochodowych. WSziP, Warszawa, 2005.		
2. Maryański A.: Stacje obsługi samochodów. WKiŁ, Warszawa, 1981.		
Result of average student's workload		
Activity	Time (working hours)	
1. Lectures	30	
2. Consultations	3	
3. Preparation for examination	10	
4. Examination	2	
5. Preparation for laboratory	15	
6. Laboratories	15	
7. Consolidation of laboratory's knowledge / reports	20	
8. Attendance in the classes	15	
9. Attestation of the classes	10	
Student's workload		
Source of workload	hours	ECTS
Total workload	120	4
Contact hours	65	2
Practical activities	50	2