

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Vehicles Service</b>		Code <b>1010614161010612453</b>
Field of study <b>Mechanical Engineering</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>3 / 6</b>
Elective path/specialty <b>Motor Vehicles and Tractors</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>First-cycle studies</b>	Form of study (full-time,part-time) <b>part-time</b>	
No. of hours Lecture: <b>10</b> Classes: <b>-</b> Laboratory: <b>8</b> Project/seminars: <b>-</b>		No. of credits <b>2</b>
Status of the course in the study program (Basic, major, other) <b>(brak)</b>		(university-wide, from another field) <b>(brak)</b>
Education areas and fields of science and art <b>technical sciences</b> <b>Technical sciences</b>		ECTS distribution (number and %) <b>1 50%</b> <b>1 50%</b>
<b>Responsible for subject / lecturer:</b> JOSKO, Marian, Assoc. Prof., PhD (Eng.), DSc email: marian.josko@put.poznan.pl tel. 61 665 22 47 Faculty of Machines and Transport 3 Piotrowo street, 60-965 Poznan, Poland		
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Basic knowledge in the range of structure and maintenance of motor-vehicles and technical objects
2	<b>Skills</b>	Ability to selection, integration and interpretation of obtained information and skills in conclusion and opinion formulation
3	<b>Social competencies</b>	Consciousness of importance and reality of non-technical aspects and effects of service activity for automotive vehicles
<b>Assumptions and objectives of the course:</b> An acquaintance with the problems of maintenance and service of motor vehicles, with basic elements of service technology of assemblies of an internal combustion engine as well as with the assemblies of an automotive vehicle chassis.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b>		
1. Has a basic knowledge concerning of an influence of servicing on technical condition of vehicle and distinguishes between service and repair - [K1A_W05]		
2. Knows various servicing systems and conditions their selection as well as kinds and organisational aspects of servicing - [K1A_W07-W11]		
3. Has a knowledge concerning the technical infrastructure of servicing, in particular some necessary equipment of automotive servicing stations and bus depots - [K1A_W17-W20]		
4. Has a knowledge connected with servicing of the assemblies of internal combustion engine - [-]		
5. Has a knowledge connected with servicing of the automotive vehicle assemblies of chassis - [-]		
6. Knows a problem of service quality, conditioned by some factories and main tendencies in servicing of contemporary automotive vehicles - [-]		
<b>Skills:</b>		
1. Is able to undertake a suitable servicing system to condition of operational use of automotive vehicle - [K1A_U20]		
2. Has the ability to fit some tools, instruments and equipment to service subassemblies of the engine and vehicle, and by one-self to carry out a servicing the most important assemblies of engine and automotive vehicle - [K1A_U23-U26]		
3. Is able to propose indispensable equipment of service station or bus depot. - [-]		
4. Is able to use of service-technical documentation as well as to draw such documentation - [-]		
5. Is able to service a motor vehicle of new generation and to gain a needed servicing information. - [-]		

<p><b>Social competencies:</b></p> <p>1. Understands a meaning of service in the aspect of an assurance of adequate vehicle utilization to realizing a various social needs - [K1A_K01-03]</p> <p>2. Is able to propose an effective way of utilization of technical infrastructure of vehicle with consideration some quality factors - [-]</p> <p>3. Is able to develop by one-self his knowledge in the scope of servicing of motor vehicles - [-]</p> <p>4. Is able to anticipate the needs and expectations of customers connected with servicing of automotive vehicles and has an awareness of meaning of service as an important item on the service market. - [-]</p>
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<p><b>Assessment methods of study outcomes</b></p>
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Attestation of the laboratories, confirmed the ability to application of principles and operations of service, obtained during lectures and needed for servicing of an engine assemblies and chassis of car as well as manual mastery of service for chosen elements of engine or a chassis of the automotive vehicle.

Credit with the course by methods of written and oral checks the basic knowledge connected with servicing of automotive vehicles, the knowledge of service systems, kinds, general principles of service and ranges of service actions concerning main assemblies of engine and the vehicles, with consideration of contemporary construction and requirements.

<p><b>Course description</b></p>
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Topic / problem: Description / Scope

Presentation and describing the main definition, concerning service of automotive vehicles, determined by physical wear some element of the vehicles and by degradation of consumable materials. Discussion the problems connected with servicing on the background of maintenance and other similar subjects. Describing the main systems of servicing, organisational methods of technical service and some details of national servicing system as well as technical base of the motorisation. Characterisation of service possibilities carried out by authorised and independent or by nets of service stations for ordinary or specific customers (leased or own fleets vehicles) realised by service contracts and service packages. Conditions and consequences of EU directives, ex. an old and a new BER, in the scope of motor vehicles servicing and their spare parts. Some elements of cosmetic and preventive servicing of vehicles, in particular automatic washing machines, their parameters and kinds, stands for subassemblies cleaning and systems of water recirculation destined for such devices. In the range of service technology ? some methods of condition evaluation of serviced vehicles. Describing the selected examples of automotive vehicles servicing and more detail some service actions of their subassemblies. Problems of assuring of satisfactory quality of vehicle servicing and its dependence on some organisational, technical, competence and motivate factories. Characterisation of technical infrastructure of servicing, technical background, service stations, bus and truck depots and car-parks. Modern equipment of service stations, principles of its correct and effective usage, describing some examples of dedicated service tools and devices ? universal and special. Fundamental principles of an industrial safety of an labour inspection during servicing. Discussion of technical and service documentation and updating service data of automotive vehicles. On board servicing of contemporary vehicles ? on board service inspection and a way its realisation.

<p><b>Basic bibliography:</b></p>
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1. Kozłowski M. (Ed.): Structure and Maintenance of Vehicles, Part 2 ? Service, Diagnosis and Repair Assemblies and Subassemblies, Vogel Business Media, Wrocław, 2006 (in Polish).
2. Uzdowski M., Abramek K., Garczynski K.: Motor Vehicles. Technical Problems of Maintenance and Repair. WKiL, Warsaw, 2009 (in Polish).
3. Livesey W. A., Robinson A.: The Repair of Vehicle Bodies. Elsevier, London, New York, Tokyo, 2005.
4. Orzelowski S.: Repair and Service of Motor Vehicles. WSzIP, Warsaw, 2011 (in Polish).
5. Maryanski A.: Service Stations of Motor Vehicles. WKiL, Warsaw, 1981 (in Polish).
6. Lewicki J.: Selected Problems of Service and Repair Technology. Printing House of Szczecin?s Polytechnic, Szczecin, 1990 (in Polish).
7. Trzeciak K.: Equipment of Car Shops. AUTO, Warsaw, 2010 (in Polish).

<p><b>Additional bibliography:</b></p>
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1. Winter Service of Car. Auto Expert Journal, 2005, No 12, pp. 27?30 (in Polish)
2. Rychter T.: An Engineer of Automotive Vehicles. WSiP, Warsaw, 2012 (in Polish)
3. Sobierajska G., Neuman Zb.: Varnish Manufacture for Automotive Vehicles. OR SIMP, Szczecin, 2012 (in Polish)
4. Stepniewski D.: Labour Safety in Motor Shops. WKiL, Warsaw, 2010 (in Polish).

<p><b>Result of average student's workload</b></p>
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Activity	Time (working hours)
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1. Lectures	15	
2. Consultations	1	
3. Preparation for examination	5	
4. Activity in examination	2	
5. Preparation for laboratory	5	
6. Activity in laboratories	15	
7. Consolidation of laboratory's knowledge / reports	7	
8. Activity in laboratory attestation	1	
<b>Student's workload</b>		
<b>Source of workload</b>	<b>hours</b>	<b>ECTS</b>
Total workload	51	2
Contact hours	34	1
Practical activities	28	1