

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Regeneration Engineering		Code 1010614271010612454
Field of study Transport	Profile of study (general academic, practical) (brak)	Year /Semester 4 / 7
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) part-time	
No. of hours Lecture: 18 Classes: - Laboratory: 18 Project/seminars: -		No. of credits 5
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 %) 5 100% 5 100%
Responsible for subject / lecturer: Zbigniew Rybak, Ph.D. eng. email: zbigniew.rybak@put.poznan.pl tel. 61 6652248 Faculty of Machines and Transport ul. Piotrowo 3 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basic knowledge on materials engineering, research and measurement methods and product technology
2	Skills	Student can integrate and analyse information possession, learn lesson and formulate and substantiate opinion on a matter
3	Social competencies	Student is aware of the role of repair technology in industrial economy in technical, economical and ecological aspects
Assumptions and objectives of the course: Assumptions and objectives of the course:Acquaintance the law of materials selection in parts repair and results evaluation criterions. Student has knowledge of damages and broken-down parts repair technology, he can evaluate the risk performance this procedure		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Has knowledge of broad principles of the part renovation - [K1A_W03] 2. Getting to know criteria and factors influencing choice about of the repair parts technique - [K1A_W03] 3. Has knowledge of the property and principles of the assortment of used materials in processes - [K1A_W03] 4. Getting to know manners of the quality o coating and layers - [K1A_W03] 5. Has knowledge about welding, electrochemical, chemical and mechanical parts repair methods - [K1A_W03]		
Skills:		
1. Ability of the selection methods and conducting the evaluation of the property repair coatings - [K1A_U01-15] 2. Analyse of factors affecting the quality of renovation parts.? - [K1A_U01-15] 3. Ability of rational selection repair method - [K1A_U01-15] 4. Designing technological repair processes of typical vehicles parts - [K1A_U01-15]		
Social competencies:		
1. Student is able convinced to justify to usefulness implementing repair processes in the economy - [K1A_K01 - 08] 2. Promoting the renovation because of material and energy savings and ecology - [K1A_K01 - 08]		

Assessment methods of study outcomes		
Estimate for drawing the design task up ? credit. Knowledge and activity on laboratory exercises - credit. Examination		
Course description		
Materials applied in the renovation processes of the motor vehicles parts- metals, alloys, ceramic and plastic materials. Ways of the evaluation of physical properties of coatings and functional properties of regenerated parts. Broad principles of the parts repair. Analysis of criteria and factors influencing choice about renovation methods. Economic aspect of the renovation parts. Technologies of the renovation of chosen vehicles parts.		
Basic bibliography:		
1. Klimpel A. Napawanie i natryskiwanie cieplne-technologie, WNT, Warszawa 2000. 2. Ashby M., Shercliff H., Cebon D. Inżynieria materiałowa, Wyd. Galaktyka T.2, Łódź 2011. 3. Tyra A. i inni, Regeneracja części maszyn i urządzeń, MCNEMT, Radom ,1989.		
Additional bibliography:		
1. Kostrzewa S. Nowak B.:Podstawy regeneracji części pojazdów samochodowych, WKiŁ, W-wa 1986. 2. Praca zbiorowa: Poradnik galwanotechnika, WNT, Warszawa, 1985.		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in lecture	18	
2. Learning of lectures content	20	
3. Participation in laboratory exercises	18	
4. Preparation for laboratories	18	
5. Independent design work	18	
Student's workload		
Source of workload	hours	ECTS
Total workload	92	5
Contact hours	36	2
Practical activities	18	1