STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Regeneration Engineering**		Code **1010611271010612454**
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) **full-time**	
No. of hours Lecture: **2** Classes: **-** Laboratory: **2** 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:

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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	15
2. Learning of lectures content	5
3. Participation in laboratory exercises	30
4. Preparation for laboratories	10
5. Participation in design exercises	15
6. Independent design work	15

Student's workload

Source of workload	hours	ECTS
Total workload	90	4
Contact hours	60	2
Practical activities	60	2