STUDY MODULE DESCRIPTION FORM

Name of the module/subject		Code
Basics Problems of Ecology		**1010614151010623053**
Field of study	Profile of study (general academic, practical)	Year /Semester
Mechanical Engineering	**(brak)**	**3 / 5**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
Motor Vehicles and Tractors	**Polish**	**obligatory**
Cycle of study:	Form of study (full-time,part-time)	
First-cycle studies	**part-time**	
No. of hours		No. of credits
Lecture: **10** Classes: **-** Laboratory: **-** Project/seminars: **-**		**1**
Status of the course in the study program (Basic, major, other)	(university-wide, from another field)	
(brak)	**(brak)**	
Education areas and fields of science and art		ECTS distribution (number and %)

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	student has knowledge related to environmental protection, learns the mechanisms of harmful compounds emissions in transport and industry, the student has a basic knowledge about factors causing danger to the environment, learns how to prevent the emission of harmful substances into the atmosphere, learns the classification of harmful compounds to human health and their safety data sheets
2	**Skills**	student is able to integrate the obtained information, to make their interpretation, draw conclusions, formulate and justify opinions, has a general knowledge in the field of environmental protection, is able to obtain information from literature and web sources
3	**Social competencies**	student is able to formulate judgments regarding to social issues, is aware of the importance and understanding of non-technical aspects and the environmental impacts of engineering, the student is aware of the risks associated with the emission of harmful substances into the atmosphere and has an environmental awareness of negative social behavior on health and human safety in transport and industry

Assumptions and objectives of the course:

Overal knowledge about the risks associated with human activities now and the possible consequences in the future, familiarization to the topics of ecology in industry and transport; hazard classification, general knowledge about alternative sources of propulsion and power of modern vehicles

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Has the knowledge in the field of toxic and harmful compounds chemical properties - [-]
2. Knows the basics of logistics process optimization in terms of ecological service of vehicles - [-]
3. Knows the methods of ecological rates increasing in companies using logistics systems - [-]
4. Knows the general outline of environmental determinants of mass transport - [-]
5. Has the general knowledge about the enviromental risks concerned with development of the transport industry - [-]

Skills:

1. Is able to make a preliminary assessment of ecological risks in transport and industry - [-]
2. Is able to analyze the factors which influence on the environmental performance in transport - [-]
3. Is able to analyze the regulations of the toxicity of exhaust gases based on the literature - [-]
4. Is able to analyze the vehicles categories in terms of their level of environmental performance - [-]
5. Is able to interpret and draw conclusions and justify opinions - [-]

Social competencies:

1. The possibility of ecological awareness formation in the social environment - [-]
2. Awareness of social risks in terms of the environmental protection and the associated responsibility for decisions - [-]

Assessment methods of study outcomes
The test of having knowledge in term of harmful compounds emissions into the atmosphere, exploitation of new technologies to limit emissions from heavy duty vehicles, optimization of logistic processes in improving company ecological factors, structures of ecological regulations for exhaust gases. One test during the semester
Course description
Industrial risks to the environment, the basic of transport systems in terms of ecology, classification of propulsion systems; basic knowledge of exhaust gas aftertreatment systems, environmentally friendly technologies in transport, the impact of macroeconomic factors on the implementation of environmentally friendly technologies in transport
Basic bibliography:
Additional bibliography:

Result of average student's workload

Activity	Time (working hours)
1. Participation in lectures	15
2. Office hours	5
3. Preparation for the final test	5

Student's workload

Source of workload	hours	ECTS
Total workload	25	1
Contact hours	20	1
Practical activities	5	0