STUDY MODULE DESCRIPTION FORM

Name of the module/subject		Code
Ecology of Gas and Fluid Transmission		**1010631361010622995**

Field of study	Profile of study (general academic, practical)	Year /Semester
Transport	**(brak)**	**3 / 6**

Elective path/specialty	Subject offered in:	Course (compulsory, elective)
Engineering of Pipeline Transport	**Polish**	**obligatory**

Cycle of study:	Form of study (full-time,part-time)
First-cycle studies	**full-time**

No. of hours				No. of credits
Lecture: **-**	Classes: **-**	Laboratory: **1**	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 %)
technical sciences	**1 100%**
Technical sciences	**1 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	the student has a basic knowledge of environmental threats [PRK4]
2	**Skills**	student is able to interpret the information obtained and the ability to self-inference and opinion [PRK4]
3	**Social competencies**	student is aware of the dangers of environmental pollution [PRK4]

Assumptions and objectives of the course:

exam

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

Knowledge:

1. has basic knowledge about the life cycle of transport means, both hardware and software, and in particular about the key processes taking place in them - [T1A_W06 [P6S_WG]]
2. has knowledge of ethical codes regarding transport engineering, is aware of the threats related to environmental protection and understands the specificity of critical systems for security reasons (mission-critical systems) - [T1A_W08 [P6S_WG]]

Skills:

1. is able to obtain information from various sources, including literature and databases, both in Polish and in English, appropriate to integrate them, make their interpretation and critical evaluation, draw conclusions, and fully justify the opinions they - [T1A_U01 [P6S_UW]]
2. can see in the process of formulating and solving tasks in the field of transport engineering also non-transport aspects, in particular social, legal and economic issues - [T1A_U05 [P6S_UW]]
3. can assess - at least in the basic scope - different aspects of risk associated with a transport undertaking - [T1A_U06 [P6S_UW]]
4. can design elements of transport using data on environmental protection - [T1A_U12 [P6S_UW]]

Social competencies:

1. understands that in technology, knowledge and skills quickly become obsolete - [T1A_K01 [P6S_KK]]
2. is aware of the importance of knowledge in solving engineering problems and knows examples and understands the reasons for malfunctioning transport systems that led to serious financial and social losses or to serious health and even life - [T1A_K02 [P6S_KK]]

Assessment methods of study outcomes
exam

Course description
Environmental hazards resulting from transport Climate change resulting from human activity Ecology concerning reduction stations and compressor stations and transmission infrastructure Threats and protection of the environment during exploration and exploitation Environmental problems associated with the construction of pipelines Ecology associated with the operation of pipelines

Basic bibliography:

1. . J. Molenda, K. Steczko: Ochrona środowiska w gazownictwie i wykorzystaniu gazu. WNT, Warszawa 2000.
2. J. Merkisz: Ekologiczne problemy stosowania silników spalinowych, WPP, Poznań 1999.
3. Gronowicz J., Ochrona środowiska w transporcie lądowym. Wyd. ITE, Poznań ? Radom 2003.

Additional bibliography:

Result of average student's workload

Activity	**Time (working hours)**
1. Participation in the lecture	15
2. Strengthening the lecture	5
3. Consultation	3
4. Preparing to pass	3

Student's workload

Source of workload	**hours**	**ECTS**
Total workload	26	1
Contact hours	26	1
Practical activities	0	0