STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Pipeline networks**		Code **1010634371010636005**
Field of study **Transport**	Profile of study (general academic, practical) **general academic**	Year /Semester **4 / 7**
Elective path/specialty **Engineering of Pipeline 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: **9** Classes: **-** Laboratory: **9** Project/seminars: **9**		No. of credits **5**
Status of the course in the study program (Basic, major, other) **other**	(university-wide, from another field) **university-wide**	
Education areas and fields of science and art **technical sciences** **Technical sciences**		ECTS distribution (number and %) **5 100%** **5 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	The basics of power engineering and the fundamentals of machine construction, construction and equipment of the pipeline and power grid [PRK4]
2	**Skills**	Construction of computational algorithms. Calculations in Excel [PRK4]
3	**Social competencies**	Knowledge and understanding of general technical energy processes [PRK4]

Assumptions and objectives of the course:

-Introduction to the issues of transmission systems for fluids and gases in pipelines and electricity. Mastering specialist vocabulary.

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

Knowledge:

1. has a structured, theoretically founded general knowledge in the field of technology, transport systems and various means of transport - [T1A_W03 [P6S_WG]]

2. has a structured and theoretically founded general knowledge in the field of key technical issues and detailed knowledge in the field of selected guesses of this discipline of transport engineering - [T1A_W04 [P6S_WG]]

3. knows the basic techniques, methods and tools used in the process of solving transport tasks, mainly of an engineering nature - [T1A_W07 [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, by formulating and solving tasks in the field of transport, apply properly selected methods, including analytical, simulation or experimental - [T1A_U04 [P6S_UW]]

3. can communicate in Polish and English using specialized terminology, using various techniques, both in a professional environment and in other environments, also using tools in the field of transport engineering - [T1A_U15 [P6S_UK]]

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]]
3. can think and act in an entrepreneurial way, including finding commercial applications for the system being created, bearing in mind not only business but also social benefits of the business - [T1A _K03 [P6S_KO]]

Assessment methods of study outcomes
Examination, report on laboratory exercises, project
Course description
-Construction and components of pipeline and power networks. Seminar analysis management of various areas of the transmission grids used. Discussion on the elements of various systems: transmission and distribution companies. Markets of electricity, gas and oil, heat and water. Energy security of the country, certainty of supplies for people and enterprises, security of transmission for people and equipment, minimization of the effects of aging networks, machines and fittings. Management tools. Economics and other criteria in transmission systems. Forecasting the development of transmission networks
Basic bibliography:
Additional bibliography:

Result of average student's workload

Activity	Time (working hours)
1. Participation for the lectures	15
2. Consultations	2
3. Preparation for the exam	4
4. Participate in exam	2
5. preparation for the laboratory exercises	4
6. particion in laboratory exercises	15
7. Strengthening the content of exercises / report	4

Student's workload

Source of workload	hours	ECTS
Total workload	115	5
Contact hours	45	2
Practical activities	70	3