

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Pipeline networks		Code 1010631371010636005
Field of study Transport	Profile of study (general academic, practical) (brak)	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) full-time	
No. of hours Lecture: 1 Classes: - Laboratory: 1 Project/seminars: 1		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: PhD Łukasz Semkło email: lukasz.semklo@put.poznan.pl tel. 616652213 Faculty of Machines and Transport ul. Piotrowo 3 60-965 Poznań		
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:		

<p>1. understands that in technology, knowledge and skills quickly become obsolete - [T1A_K01 [P6S_KK]]</p> <p>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]]</p> <p>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]]</p>
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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:		
1. Dembińska-Cyran I., Gubała M.: Podstawy zarządzania transportem w przykładach. Wydawnictwo Instytut Logistyki i Magazynowania. Poznań 2005		
2. Logistyka systemów przesyłowych		
Additional bibliography:		
1. Literatura: wybór czasopism branżowych		
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