



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Pipeline networks

### Course

Field of study

Year/Semester

Transport

4/7

Area of study (specialization)

Profile of study

general academic

Level of study

Course offered in

First-cycle studies

Polish

Form of study

Requirements

part-time

elective

### Number of hours

Lecture

Laboratory classes

Other (e.g. online)

9

18

0

Tutorials

Projects/seminars

0

0

### Number of credit points

4

### Lecturers

Responsible for the course/lecturer:

Responsible for the course/lecturer:

PhD Łukasz Semkło

email: lukasz.semklo@put.poznan.pl

Faculty of Environmental Engineering and  
Energy

phone : 61 6652213

Piotrowo 3 street, 60-965 Poznan

### Prerequisites

Basics of power engineering and basics of machine construction, construction and equipment of pipeline and power networks. Construction of calculation algorithms. Calculations in Excel. General knowledge and understanding technical energy processes.

### Course objective

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

### Course-related learning outcomes

Knowledge



The student has an ordered, theoretically founded general knowledge of technology, transport systems and various means of transport

The student has ordered and theoretically founded general knowledge in the field of key issues of technology and detailed knowledge in the field of selected issues in this discipline of transport engineering

The student knows the basic techniques, methods and tools used in the process of solving tasks in the field of transport, mainly of an engineering nature engineering

#### Skills

The student is able to obtain information from various sources, including literature and databases (both in Polish and in English), integrate it properly, interpret it and critically evaluate it, draw conclusions, and comprehensively justify his/her opinion.

Student is able, when formulating and solving tasks in the field of transport, to apply appropriately selected methods, including analytical, simulation or experimental methods

The student can communicate in Polish and English using specialized terminology, using various techniques, both in the professional environment and in other environments, also with the use of tools in the field of transport engineering

#### Social competences

The student understands that in technology, knowledge and skills very quickly become obsolete

The student is aware of the importance of knowledge in solving engineering problems, knows examples and understands the causes of malfunctioning transport systems that have led to serious financial and social losses or to serious loss of health and even life

The student can think and act in an entrepreneurial way, incl. finding commercial applications for the created system, taking into account not only business benefits, but also social benefits of the conducted activity

#### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture - written exam. Obtaining credit from a minimum of 51% of the points possible to get. There is a possibility of an oral question to raise the grade.

Laboratories - positive evaluation of reports on exercises performed

#### Programme content

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

### Teaching methods

Informative (conventional) lecture (information transfer in a structured way)

### Bibliography

Basic

1. Instalacje turbiny gazowej w energetyce i przemyśle / Tadeusz Chmielniak, Sebastian Lepszy, Daniel Czaja. Wydawnictwo Politechniki Śląskiej, 2015.
2. Przemysłowa energia odpadowa : zasady wykorzystania, urządzenia : praca zbiorowa / [poszczeg. rozdz. książki oprac. Jan Szargut et al.]. Wydawnictwa Naukowo-Techniczne, 1993.
3. Bęczkowski W.: Rurociągi energetyczne Część 1. Wydawnictwo Naukowo – Techniczne. Warszawa 1964
4. Bęczkowski W.: Rurociągi energetyczne Część 2. Wydawnictwo Naukowo – Techniczne. Warszawa 1965
5. Dembińska-Cyran I., Gubała M.: Podstawy zarządzania transportem w przykładach. Wydawnictwo Instytut Logistyki i Magazynowania. Poznań 2005
6. Witold Michałowski: Rurociągi dalekiego zasięgu, Wydawnictwo Fundacja Odysseum, Warszawa 2006

Additional

1. Magda W.: Rurociągi podmorskie. Zasady projektowania. Wydawnictwo Naukowo-Techniczne. Warszawa 2004
2. Thier, Bernard: Armatura przemysłowa : elementy konstrukcyjne rurociągów, PNT CIBET, 2001.
3. Gosztowtt, Leon: Rurociągi i armatura, Państwowe Wydawnictwo Techniczne, 1953.

### Breakdown of average student's workload

	Hours	ECTS
Total workload	90	4,0
Classes requiring direct contact with the teacher	27	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	63	3,0

<sup>1</sup> delete or add other activities as appropriate