



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Designing of transmission networks

Course

Field of study

Year/Semester

Transport

2/2

Area of study (specialization)

Profile of study

Engineering of Pipeline Transport

general academic

Level of study

Course offered in

Second-cycle studies

Polish

Form of study

Requirements

part-time

elective

Number of hours

Lecture

Laboratory classes

Other (e.g. online)

9

Tutorials

Projects/seminars

18

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

Responsible for the course/lecturer:

PhD Łukasz Semkło

email: lukasz.semklo@put.poznan.pl

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Faculty of Environmental Engineering and
Energy

Piotrowo 3 street, 60-965 Poznan

Prerequisites

Knowledge regarding the calculation of flow and changes in pressure parameters, temperature and mass and volume streams in pipelines, basics of fluid transmission network construction. Performing thermodynamic and flow calculations, building calculation algorithms, reading and analyzing technological diagrams. Understanding the need for quantitative thermodynamic, economic and ecological assessment, social (qualitative) aspects of the above issues.

Course objective

Understanding the necessary data set and assumptions for the design of fluid transmission networks



Course-related learning outcomes

Knowledge

has advanced and in-depth knowledge of transport engineering, theoretical foundations, tools and resources used to solve simple engineering problems

has ordered and theoretically founded general knowledge related to key issues in the field of transport engineering

Skills

is able to communicate in Polish and English using various techniques in a professional environment and in other environments, also using transport engineering issues

is able to obtain information from literature, databases and other sources (in Polish and English), integrate them, perform their interpretation and critical assessment, draw conclusions and formulate and comprehensively justify opinions

Social competences

understands that in the field of transport engineering, knowledge and skills are rapidly becoming obsolete

understands the importance of using the latest knowledge in the field of transport engineering in solving research and practical problems

is aware of the need to develop professional achievements and compliance with the principles of professional ethics

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture and exercises - 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.

Programme content

Data sets and assumptions for the design of fluid transmission networks. Differences in the design of gas, water and heating networks. Physical and mathematical description of flow models in transmission networks. Calculation Methods? basics of calculations. Characteristics of the usability of computer programs. Efficiency of calculations compared to subsequent network monitoring. Fixed transmissions and impact of non-stationarity

Teaching methods

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

Exercise method (subject exercises, exercises) - in the form of auditorium exercises (the application of acquired knowledge in practice - can take a different nature: solving cognitive tasks or training psychomotor skills; transforming conscious activity into a habit through repetition)



Bibliography

Basic

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

Exercise method (subject exercises, exercises) - in the form of auditorium exercises (the application of acquired knowledge in practice - can take a different nature: solving cognitive tasks or training psychomotor skills; transforming conscious activity into a habit through repetition)
1. Projektowanie sieci wodociągowych / Wiktor Petrozolin. Arkady, 1967.

2. Technologie bezwykopowej budowy sieci gazowych, wodociągowych i kanalizacyjnych / Agata Zwierzchowska. Wydawnictwo Politechniki Świętokrzyskiej, 2009.

3. Optymalne wymiarowanie sieci przewodów wodociągowych dla zmieniających się warunków rozbioru wody / Jarosław Ciesielski. Wydawnictwo Politechniki Poznańskiej, 1989.

4. Projektowanie preizolowanych sieci ciepłych w technologii ABB Zamech / Żarski Kazimierz. ABB Zamech Ltd, 1994.

Additional

1. Wspomagane komputerowo projektowanie sieci wodociągowych / Biedugnis Stanisław. Wydaw.PW, 1990.

Breakdown of average student's workload

	Hours	ECTS
Total workload	57	3,0
Classes requiring direct contact with the teacher	27	1,5
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests) ¹	30	1,5

¹ delete or add other activities as appropriate