COURSE DESCRIPTION CARD - SYLLABUS

Course name

Operation of pipeline transport machines and equipment

Course

Field of study

Transport

Year/Semester

2/3

Area of study (specialization)

Engineering of Pipeline Transport

Profile of study

general academic

Level of study

Second-cycle studies

Course offered in

Polish

Form of study

part-time

Requirements

elective

Number of hours

Lecture

18

Laboratory classes

Other (e.g. online)

Tutorials

9

Projects/seminars

Number of credit points

3

Lecturers

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

Responsible for the course/lecturer:

Prerequisites

Knowledge of the construction of propulsion engines of machines and devices for fluid transport. Mechanical engineering in the field of construction: pumps, fans, blowers and compressors. Basic knowledge of thermal and mechanical loads of machines and devices. Knowledge of thermodynamic, economic and ecological measures of evaluation of the best energy machines and aggregates. Strict terminology used in the field of mechanics, thermodynamics, machines and devices for pipeline transport. Conduct qualitative analyzes of operations and quantitative analyzes based on measurements of operational parameters. Social understanding and economic consequences of inability or poor operation of machinery and equipment. Ability to formulate tasks for the rational operation of machinery and equipment for pipe transport. Ability to work and team analyzes.

Course objective

Presentation of qualitative and quantitative aspects of the operation of machinery and equipment for pipeline transport (MUTR). Measures to assess the quality of machinery and equipment operation. Adverse phenomena in aspects of the operation of machines and devices for pipeline transport

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 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

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

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

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

Operating characteristics of pumps, fans, blowers and compressors, and propulsion engines of gas turbine engines and electric motors. Cooperation of fluid transfer machines with propulsion engines. Cooperation of fluid transfer machines with pipeline networks. Particular phenomena in operation: pumping, cavitation, aging of machinery and equipment. Regulation and operational monitoring. Methods of counteracting adverse phenomena and threats ..

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

1. Fortuna St.: Wentylatory. Podstawy teoretyczne, zagadnienia konstrukcyjno eksploatacyjne i zastosowanie. TECHWENT. Kraków 1999

2. Tuliszka E. Sprężarki, dmuchawy i wentylatory. WNT. Warszawa 1971

3. Jędral A.: Pompy. WNT. Warszawa. 2002

Additional

1. Tuliszka E. Turbiny cieplne. WNT. Warszawa 1974

Breakdown of average student's workload

	Hours	ECTS
Total workload	72	3,0
Classes requiring direct contact with the teacher	27	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests) [1]	45	2,0

[1] delete or add other activities as appropriate