COURSE DESCRIPTION CARD - SYLLABUS

Course name

Measurement, control and regulation in pipeline installations

Course

Field of study

Transport

Year/Semester

1/1

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

full-time

Requirements

elective

Number of hours

Lecture

15

Laboratory classes

15

Other (e.g. online)

Tutorials

15

Projects/seminars

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

PhD Rafał Urbaniak

email: rafal.urbaniak@put.poznan.pl

phone : 61 6652331

Faculty of Environmental Engineering and Energy

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 for assessing the excellence of machinery and energy aggregates. Strict use of terminology concepts in the field of mechanics, thermodynamics, machinery and equipment for pipeline transport. Conducting analyzes of qualitative evaluation of operations and quantitative analyzes based on measurements of operational parameters. Understanding the social and economic consequences of improper or bad operation of machinery and equipment. Ability to

formulate tasks for the rational operation of machinery and equipment for pipeline transport. Ability to work and team analyzes.

Course objective

Preparation for measurements on pipeline transport installations for a quantitative assessment of the quality of machinery and equipment operation

Course-related learning outcomes

Knowledge

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

knows advanced methods, techniques and tools used in solving complex engineering tasks and conducting research in a selected area of transport

has basic knowledge regarding management / running a business and individual entrepreneurship

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 assess the usefulness of methods and tools for solving an engineering task consisting in the construction or assessment of a transport system or its components, including the limitations of these methods and tools

can determine the directions of further learning and implement the process of self-education, including other people

Social competences

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

understands the importance of dissemination activities regarding the latest achievements in the field of transport engineering

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.

Laboratories - reports of performed exercises

Programme content

Description and analysis of the components of pipeline installations: e.g. gas pipelines, water pipelines, heat pipelines, pump installations, compressed air installations, pneumatic and hydraulic transport installations of particulate materials. Construction and use of measuring instruments. Analysis of the purpose of the study. Determining the necessary measurement parameters. Collection and processing of quantities measured for the quantitative assessment of the operation and goodness of machines and devices. Control and regulation in pipeline installations.

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. Miernictwo cieplne : teoria i ćwiczenia laboratoryjne/ / oprac. Czesław Oleśkowicz-Popiel [et al.] ; Politechnika Poznańska. Wydaw. PP, 1970.

2. Miernictwo energetyczne : [praca zbiorowa]. Cz. 2, Pomiary energetyczne maszyn i urządzeń cieplnych / [pod red. Mieczysława Sąsiadka i Kazimierza Szymochy ; poszczególne rozdz. oprac. Zdzisław Kabza et al.]. Wydawnictwo Politechniki Wrocławskiej, 1974.

Additional

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	45	2,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests) [1]	30	1,0

[1] delete or add other activities as appropriate