POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

# COURSE DESCRIPTION CARD - SYLLABUS

Course name

Technologies for the operation of gas fuel networks

## Course

| Field of study | Year/Semester |
|---|---|
| Transport | 1/2 |
| 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) |
|---|---|---|
| 18 | | |
| Tutorials | Projects/seminars | |

## Number of credit points

2

## Lecturers

Responsible for the course/lecturer:

PhD Rafał Ślefarski

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phone : 61 6652218

Faculty of Environmental Engineering and Energy

Piotrowo 3 street, 60-965 Poznan

Responsible for the course/lecturer:

## Prerequisites

Knowledge about methods of analysis of selected thermodynamic and flow phenomena occurring in the transport of gaseous fuels. Knowledge about the processes of production, purification and storage of gaseous fuels. Ability to analyze simple transport systems in terms of gas transport, energy transport, flow phenomena and environmental impact. Awareness of the need to expand the scope of acquired knowledge and skills. Ability to comply with the rules in force during lectures and laboratories, the ability to communicate with the closest environment during lectures and exercises, and to perform work in a laboratory team. )

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## Course objective

To familiarize students with aspects of the operation of low and high pressure gas networks

## Course-related learning outcomes

### Knowledge

has advanced detailed knowledge regarding selected 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

### Skills

can - using, among others conceptually new methods - solve complex tasks in the field of transport engineering, including atypical tasks and tasks containing a research component

can - when formulating and solving engineering tasks - integrate knowledge from various transport areas (and, if necessary, also knowledge from other scientific disciplines) and apply a systemic approach, also taking into account non-technical aspects

### Social competences

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 - 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

distribution network control methods in closed and open systems, explosion hazard zones, measuring devices controlled by the Scada system, noise phenomenon in gas networks, Corrosion and corrosion protection of a gas network, Economic efficiency of investments in the gas industry, Simulation and optimization of gas networks

## Teaching methods

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

## Bibliography

### Basic

1. Molenda J.: Gaz ziemny. Paliwo i surowiec, WNT, Warszawa

2. Vademecum Gazownika, praca zbiorowa

3. Osiadacz: Stacje gazowe, teoria i projektowanie

4. Bąkowski K, Sieci i instalacje gazowe

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Additional

1. Łaciak, M. Bezpieczeństwo eksploatacji urządzeń, instalacji i sieci gazowych

**Breakdown of average student's workload**

|  | Hours | ECTS |
|---|---|---|
| Total workload | 48 | 2,0 |
| Classes requiring direct contact with the teacher | 18 | 1,0 |
| Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests) [1] | 30 | 1,0 |

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[1] delete or add other activities as appropriate