



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Gas networks

Course

Field of study

Industrial and Renewable Energy

Area of study (specialization)

Gas Technology and Renewable Energy

Level of study

Second-cycle studies

Form of study

full-time

Year/Semester

1/1

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

Number of hours

Lecture

30

Laboratory classes

Other (e.g. online)

Tutorials

15

Projects/seminars

Number of credit points

3

Lecturers

Responsible for the course/lecturer:

dr inż Michał Gołębiewski

Responsible for the course/lecturer:

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tel. 616652135

Faculty of Environmental Engineering and Energetic

Prerequisites

Basic information on thermodynamics, heat transfer and fluid mechanics including the calculation of flow parameters in pipelines.



Performing thermodynamic and flow calculations for selected fluid flow issues

The student is able to cooperate in a group, taking on different roles in it to solve the tasks set before him.

Course objective

Understanding the basic elements of gas network construction and methods of their design

Course-related learning outcomes

Knowledge

- 1.Knows the basic processes occurring in the life cycle of devices, facilities and technical systems used gas networks
- 2.Student has deep knowledge of operational parameters impact on the efficiency of energy machines works in gas networks and their functioning of energy systems
- 3.Student has knowledge of the negative impact of gas networks on the natural environment

Skills

- 1.Student is able to use analytical, simulation and experimental methods to formulate and solve engineering tasks in the field of gas networks
- 2.Student is able to solve research and engineering tasks requiring the use of engineering standards and norms as well as the use of technologies appropriate for gas networks, using experience gained in a professional environment engaged in engineering activities
- 3.Student is able to manage the work of the team in area of gas networks

Social competences

- 1.Student is ready to critically assess knowledge and received information in the field of gas networks
- 2.Student is ready to think and act in an entrepreneurial way in the field of gas networks
- 3.Student is ready to perform responsible professional roles, taking into account changing social needs, including:
 - developement of the profession's achievements,
 - maintainance the profession ethos,
 - compliance of professional development with ethics principles and introduce actions to comply with these principles

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture - the written examination



The evaluation of student knowledge will be held based on an answers on 5 questions from the material presented during the lectures.

Classes - final test and rewarding knowledge necessary for the accomplishment of the problems in the area of the subject

Programme content

Construction of low and high pressure gas transport systems, calculations of basic elements of gas station construction, gas stations, control systems, pipeline corrosion protection, explosion hazard zones, pipeline construction materials.

Teaching methods

Lecture: multimedia presentation, illustrated with examples on the board.

Exercises: performing theoretical calculations on the board.

Bibliography

Basic

1.Tuliszka E.: Mechanika Płynów

2.Bąkowski K.: Sieci i instalacje gazowe

3.Andrzej Osiadacz: Stacje gazowe. Teoria, projektowanie, eksploatacja

4.Witalis Ratasiewicz: Stacje gazowe w systemach dostawy gazu, Poradnik; Polskie Zrzeszenie Inżynierów i Techników Sanitarnych

5.Grabowski H.: Poradnik techniczno-budowlany dla użytkowników sieci gazowej w systemie dystrybucyjnym. SITPNiG Ośrodek Szkolenia i Rzecznawstwa, Grupa Terenowa Rzecznawców w Poznaniu, 2011

Additional

1.Rybicki Cz., Łuczyński S.: Pomiar natężenia przepływu. Wiertnictwo Nafta Gaz, t. 24 z.2, 2007.

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,0
Classes requiring direct contact with the teacher	45	1,8
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) ¹	30	1,2

¹ delete or add other activities as appropriate