



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Gas engineering

Course

Field of study

Environmental Engineering

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

2 / 4

Profile of study

general academic

Course offered in

Polish

Requirements

compulsory

Number of hours

Lecture

30

Laboratory classes

Other (e.g. online)

Tutorials

Projects/seminars

30

Number of credit points

4

Lecturers

Responsible for the course/lecturer:

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Responsible for the course/lecturer:

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Prerequisites

1. Knowledge:

Basis of combustion processes. Fluid flow in the ducts, pressure loss. Pressure, pressure units. Durability of materials.

2. Skills:

Calculation of simple and complex hydraulic systems.

3. Social competencies:



Awareness of need to constantly update and supplement knowledge and skills.

Course objective

Acquire of knowledge and skills in field of construction, operation and design of low and medium pressure gas networks.

Course-related learning outcomes

Knowledge

1. Student knows basic properties of flammable gases and risks associated with their use (effect achieved during lectures) - [KIS_W05, KIS_W07]
2. Student has knowledge about gas network systems, devices and fittings associated with them (effect achieved during lectures) - [KIS_W05, KIS_W07]
3. Student knows basic materials used to construct components of gas systems (effect achieved during lectures) - [KIS_W05, KIS_W07]
4. Student has knowledge about construction, design, operation and regulation of low and medium pressure gas networks (effect achieved during lectures) - [KIS_W05, KIS_W07]

Skills

1. Student can calculate gas demand and load of gas networks (effect achieved during design exercises) - [KIS_U06, KIS_U07, KIS_U08, KIS_U09, KIS_U10]
2. Student can design low- and medium-pressure gas network (effect achieved during design exercises) - [KIS_U06, KIS_U07, KIS_U08, KIS_U09, KIS_U10]
3. Student can design gas connection (effect achieved during design exercises) - [KIS_U06, KIS_U07, KIS_U08, KIS_U09, KIS_U10]

Social competences

1. Student understands the need for teamwork in solving theoretical and practical problems (effect achieved during design exercises) - [KIS_K03, KIS_K02]
2. Student is aware of the advantages, disadvantages and limitations technical solutions applied (effect achieved during design exercises) - [KIS_K03, KIS_K02]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lectures

Written final exam (effects W1 to W4).

Mark scale (percentage / mark): 0-50 ndst, 51-60 dst, 61-70 dst+, 71-80 db, 81-90 db+, 91-100 bdb

Design exercise

Ongoing control of project during exercise and consultation, final exercise checking at the semester end.



Mark scale (percentage / mark): 0-50 ndst, 51-60 dst, 61-70 dst+, 71-80 db, 81-90 db+, 91-100 bdb

Programme content

Flammable gas properties, risks associated with their use. Types of gas networks due to its structure and functions. Elements necessary for functioning of gas supply systems. Determination of gas demand and computation of gas networks. Gas connections for buildings.

Design exercises subjects (design exercises implemented in 2-seater teams):

Calculation of gas demand.

Gas connection design for gas boiler plant or residential buildings.

Teaching methods

Lectures (conversatory and problem elements of lectures) using multimedia presentation.

Design exercises - project-based tasks including work in teams.

Bibliography

Basic

1. Bąkowski K., Sieci i instalacje gazowe, Wydawnictwo Naukowe PWN, Warszawa, 2014
2. Guzik J., Instalacje i sieci gazowe, Wydawnictwo KaBe s.c., 2019

Additional

1. Łaciak M., Bezpieczeństwo eksploatacji urządzeń instalacji sieci gazowych, Rarbonus, 2010

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,0
Classes requiring direct contact with the teacher	60	2,5
Student's own work (literature studies, preparation for exam, project preparation) ¹	40	1,5

¹ delete or add other activities as appropriate