



MODULE SPECIFICATION

Module code	
Module title in Polish	Sieci i instalacje gazowe
Module title in English	Gas Supply Networks and Systems
Module running from the academic year	2016/2017

A. MODULE IN THE CONTEXT OF THE PROGRAMME OF STUDY

Field of study	Environmental Engineering
Level of qualification	first cycle (first cycle, second cycle)
Programme type	academic (academic/practical)
Mode of study	full-time (full-time/part-time)
Specialism	Sanitary Pipelines and Systems; Water Supply, Treatment of Wastewater and Solid Waste
Organisational unit responsible for module delivery	Department of Piped Utility Systems
Module co-ordinator	Agata Zwierzchowska, PhD, Eng.
Approved by:	Prof. Andrzej Kulickowski, PhD hab., Eng.

B. MODULE OVERVIEW

Module type	core module (core/programme-specific/elective HES*)
Module status	optional (compulsory/optional)
Language of module delivery	Polish/English
Semester in the programme of study in which the module is taught	semester 6
Semester in the academic year in which the module is taught	summer semester (winter semester/summer semester)
Pre-requisites	None (module code/module title, where appropriate)
Examination required	No (Yes/No)
ECTS credits	2

* elective HES – elective modules in the Humanities and Economic and Social Sciences

Mode of instruction	lectures	classes	laboratories	project	others
Total hours per semester	15			15	

C. LEARNING OUTCOMES AND ASSESSMENT METHODS



Module aims	The aim of the module is to acquaint students with knowledge on gas networks and installations (combustible gases; the elements and materials concerning networks and installations; gas devices and the principles of designing them).
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Module outcome code	Module learning outcomes	Mode of instruction (l/c/lab/p/others)	Corresponding programme outcome code	Corresponding discipline-specific outcome code
W_01	A student is familiar with the properties of combustible gases as well as the threats concerning their application.	l	IŚ_W01	T1A_W01 T1A_W02
W_02	A student knows the elements, kind of gas networks and gas installations as well as the principles of leading them.	l/p	IŚ_W10	T1A_W04 T1A_W05 T1A_W06 T1A_W07
W_03	A student knows the materials and fittings applied in gas networks and installations.	l/p	IŚ_W06	T1A_W03 T1A_W04 T1A_W05 T1A_W07
W_04	A student knows the principles of calculating and dimensioning gas networks and installations.	l/p	IŚ_W10	T1A_W04 T1A_W05 T1A_W06 T1A_W07
W_05	A student understands the essence of disposing fumes from gas devices and room ventilation in which they are placed.	l/p	IŚ_W10	T1A_W04 T1A_W05 T1A_W06 T1A_W07
U_01	A student can design a gas installation for a block of flats.	l/p	IŚ_U10, IŚ_U19	T1A_U02 T1A_U03 T1A_U05 T1A_U07 T1A_U08 T1A_U09 T1A_U10 T1A_U11 T1A_U13 T1A_U14 T1A_U15 T1A_U16
U_02	A student can select appropriate materials for the designed installation and networks elements.	l/p	IŚ_U15	T1A_U07 T1A_U10 T1A_U14 T1A_U15
U_03	A student can design appropriate fume disposal from gas devices and room ventilation in which it is present.	l/p	IŚ_U19	T1A_U03 T1A_U05 T1A_U07 T1A_U08 T1A_U09 T1A_U10 T1A_U11 T1A_U13 T1A_U14 T1A_U15 T1A_U16
U_04	A student can design a gas line of a branched type	l/p	IŚ_U10, IŚ_U19	T1A_U02 T1A_U03 T1A_U05 T1A_U07 T1A_U08 T1A_U09 T1A_U10 T1A_U11 T1A_U13 T1A_U14 T1A_U15 T1A_U16
K_01	A student can work individually on the assigned project task.	p	IŚ_K01	T1A_K03
K_02	A student is responsible for the reliability of the obtained project results and their interpretation.	p	IŚ_K02	T1A_K02 T1A_K05
K_03	A student independently improves and broadens his/her	l/p	IŚ_K03	T1A_K01 T1A_K02



	knowledge in terms of gas installations.			T1A_K04
K_04	A student acts according to a professional code of conduct	I	IS_K08	T1A_K05

Module content:

1. Topics to be covered in the lectures

No.	Topics	Module outcome code
1	Familiarising students with the syllabus of the lectures, the form of conducting classes, and the conditions of obtaining a credit. Issuing literature connected with the subject. Combustible gases (their properties, characteristics and threats connected with their application).	W_01 K_03, K_04
2	The kinds, elements of gas networks and the materials used for their laying.	W_02 W_03 K_03 K_04
3	The principles of calculating and dimensioning gas networks of branched type.	W_04 U_04 K_03 K_04
4	Main elements of gas installations. The principles of locating the main tap, and leading the ducts of gas installations. Materials and fittings in gas installations.	W_02 W_03 U_01 U_02 K_03 K_04
5	The principles of locating gas devices. The removal of fumes from gas devices and ventilating rooms.	W_02 W_05 U_01 U_03 K_03 K_04
6	The principles of calculating and dimensioning gas installations.	W_02 W_04 U_01 K_03 K_04
7	Gas connections to buildings.	W_02 W_03 U_01 K_03 K_04
8	Gas meters and gas devices.	W_02 K_03 K_04

2. Topics to be covered in the project

No.	Topics	Module outcome code
1	The calculation of the operating load for the pipelines for the gas network of branched type	U_04 K_01 K_02 K_03
2	The calculation of the pressure losses and the diameter dimensioning for the pipelines for the gas network of branched type	U_04 K_01 K_02 K_03
3		W_02 U_01



	Designing the route of gas connection as well as the location of a main tap for a block of flats supplied with ground gas and low pressure.	K_01 K_02 K_03
4	Designing the system of gas installation ducts in the basement.	W_02 W_03 U_01 U_02 K_01 K_02 K_03
5	Designing the system of gas installation ducts as well as placing gas devices on repeatable floors.	W_02 W_03 W_05 U_01 U_02 U_03 K_01 K_02 K_03
6/7	Selecting diameter values of a gas installation on the basis of hydraulic calculations.	W_04 U_01 K_01 K_02 K_03
8	Calculating the diameter of a gas connection, making a connection profile.	W_02 W_03 W_04 U_01 U_02 K_01 K_02 K_03

Assessment methods

Module outcome code	Assessment methods <i>(Method of assessment; for module skills – reference to specific project, laboratory and similar tasks)</i>
W_01	A test
W_02	A test and a project
W_03	A test and a project
W_04	A test and a project
W_05	A test and a project
U_01	A test and a project
U_02	A test and a project
U_03	A test and a project
K_01	A project. Observation of the students work during the classes
K_02	A project. Observation of the students work during the classes
K_03	A test and a project. Observation of the students work during the classes
K_04	Participation in the discussion during the lecture

D. STUDENT LEARNING ACTIVITIES

ECTS summary	
Type of learning activity	Study time/



		credits
1	Contact hours: participation in lectures	15
2	Contact hours: participation in classes	
3	Contact hours: participation in laboratories	
4	Contact hours: attendance at office hours (2-3 appointments per semester)	2
5	Contact hours: participation in project-based classes	15
6	Contact hours: meetings with a project module leader	2
7	Contact hours: attendance at an examination	
8		
9	Number of contact hours	34 <i>(total)</i>
10	Number of ECTS credits for contact hours <i>(1 ECTS credit = 25-30 hours of study time)</i>	1.36
11	Private study hours: background reading for lectures	4
12	Private study hours: preparation for classes	
13	Private study hours: preparation for tests	4
14	Private study hours: preparation for laboratories	
15	Private study hours: writing reports	
16	Private study hours: preparation for a final test in laboratories	
17	Private study hours: preparation of a project/a design specification	8
18	Private study hours: preparation for an examination	
19		
20	Number of private study hours	16 <i>(total)</i>
21	Number of ECTS credits for private study hours <i>(1 ECTS credit = 25-30 hours of study time)</i>	0.64
22	Total study time	50
23	Total ECTS credits for the module <i>(1 ECTS credit = 25-30 hours of study time)</i>	2
24	Number of practice-based hours <i>Total practice-based hours</i>	25
25	Number of ECTS credits for practice-based hours <i>(1 ECTS credit = 25-30 hours of study time)</i>	1

E. READING LIST

References	1. Osiadacz A.: Simulations and Analysis of Gas Networks. Gulf Publishing Company, Houston TX, 1987. 2. Treloar R. D.: Gas Installation Technology. Wiley Blackwell.
Module website	