

COURSE DESCRIPTION CARD

Faculty of Civil Engineering and Environmental Sciences									
Field of study								Degree level and programme type	
Specialization/ diploma path								Study profile	Academic profile
Course name	Gas installations and networks							Course code	IS-FCEE-00144-1S/W
								Course type	Erasmus
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	Semester	summer/winter
	15			15				No. of ECTS credits	4
Entry requirements	Fluid Mechanics, Thermal Technique, Heat Transfer Theory								
Course objectives	Description of assumed knowledge, skills and social competence the student should have acquired after the completion of the module: Familiarize students with the methods of calculation and of design of the Gas installations and networks								
Course content	Types of gas. Elements of gas installations. Elements of the gas network. Calculation of demand for gas; conduct and types of gas pipes Calculation of pressure losses in the installation / gas network. Installation of gas meters, gas cookers and other gas appliances. Flue gas appliances and ventilation of rooms. Laws concerning the installation / gas networks. Rules for the implementation and acceptance of installation / gas network. Operation and installation of gas appliances. Risks associated with the operation of the gas installation, Maintenance and caulking gas installations								
Teaching methods	lecture, project								
Assessment method	lecture - written exam; project - completion, presentation and discussion of the project								
Symbol of learning outcome	Learning outcomes							Reference to the learning outcomes for the field of study	
LO1	Student has detailed knowledge of the fields of study							K_W03	
LO2	Student knows and uses computer tools to support the calculation and design of equipment and systems in environmental engineering							K_W13	
LO3	The student knows the standards, guidelines, principles of environmental engineering design objects and their components, and their consideration in engineering practice							K_W14	

L04	Student is able to work individually and in a team, is able to estimate the necessary time of the task, can lead a small team to ensure execution of tasks in a given period	K_U02
L05	Students can prepare and give a presentation on the implementation of the project or research task, and lead a discussion about the showed presentation	K_U04
L06	Student is able to use the guidelines, standards and principles of design in order to select the appropriate processes and components to designed technological device or system as well as the unusual processes with the conceptually new methods	K_U22
Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed
L01	written exam;	L
L02	discussion	P
L03	completion and presentation of the project	P
L04	completion and presentation of the project	P
L05	completion and presentation of the project	P
L06	completion and presentation of the project	P
Student workload (in hours)		No. of hours
Calculation	lecture attendance	15
	participation in classes, laboratory classes, etc.	15
	preparation for classes, laboratory classes, projects, seminars, etc.	15
	work on projects, reports, etc.	50
	participation in student-teacher sessions related to the class / seminar / project	5
	implementation of project tasks	2
	preparation for and participation in exams/tests	3
	TOTAL:	105
Quantitative indicators		HOURS
Student workload – activities that require direct teacher participation		40
Student workload – practical activities		115
Basic references	1. Bąkowski K., Sieci i instalacje gazowe: poradnik projektowania budowy i eksploatacji, Warszawa, WNT 2009 2. Bąkowski K., Gazyfikacja: gazociągi, stacje redukcyjne, instalacje i urządzenia gazowe, WNT, Wrszawa 1999	
Supplementary references	3. Bąkowski K., Bartuś J., Zajda R., Projektowanie instalacji gazowych, Arkady, Warszawa 1983.B17 4. Bąkowski K., Sieci gazowe: projektowanie, budowa, Arkady, Warszawa 1978. 5. Molenda J., Gaz ziemny: paliwo i surowiec, Warszawa, WNT 1996. 6. PN-C-04751, Gaz ziemny - Ocena jakości, Polski Komitet Normalizacyjny, Warszawa 2002.	

	7. PN-EN 125, Urządzenia nadzoru płomienia do odbiorników spalających gaz, ALFA-WERO Warszawa 2001.	
Organisational unit conducting the course	Department of HVAC Engineering	Date of issuing the programme
Author of the programme	Assoc. Prof. Mariusz Adamski, DSc, PhD, Eng.	30.03.2023

L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW - field work,

S – seminar