

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Diagnostics and studies of sanitary systems		Code 1010101271010105186
Field of study Environmental Engineering First-cycle Studies	Profile of study (general academic, practical) general academic	Year /Semester 4 / 7
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) elective
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 30 Classes: 15 Laboratory: - Project/seminars: -		No. of credits 2
Status of the course in the study program (Basic, major, other) other		(university-wide, from another field) university-wide
Education areas and fields of science and art		ECTS distribution (number and %)
Responsible for subject / lecturer: dr inż. Julian Skiba email: julian.skiba@put.poznan.pl tel. 61 6652078 Faculty of Civil and Environmental Engineering ul. Berdychowo 4 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Knowledge of technical solutions , principles and requirements for water , sewage and gas systems
2	Skills	Design and operation of basic measuring devices used in environmental engineering laboratory known during the course of fluid mechanics , chemistry and biology
3	Social competencies	Awareness of the need to constantly update and supplement knowledge based on industry literature , conference materials and the acquisition of skills in bringing it to the practice of engineering
Assumptions and objectives of the course: Getting to know the requirements for water , sewage and gas systems in the light of legal acts and engineering knowledge The ability to select design and operating parameters for the evaluation of sanitary installations for correct operation Familiarize yourself with the basic instruments and measurement systems for measuring parameters of the water , sewage and gas systems		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. The student knows the requirements for assessing the operation of water , sewage and gas systems - [-] 2. The student knows the basic parameters characterizing the correct operation of an installation - [-]		
Skills: 1. The student can choose what operating parameters , select the installation to assess the correctness of its actions - [-] 2. The student is able to choose and install a device for measuring the parameters of the installation determine its proper operation - [-]		
Social competencies: 1. Awareness of the need to constantly update and supplement knowledge based on industry literature , conference materials and the acquisition of skills in bringing it to the practice of engineering - [-]		

Assessment methods of study outcomes

<p>Evaluation criteria: more than 100 points excelled 91?100 very good (A) 81? 90 good plus (B) 71? 80 good (C) 61? 70 satisfactory plus (D) 51? 60 satisfactory (E) 50 and below inadequate (F)</p>		
Course description		
<p>The basic parameters for the assessment of the proper operation of water and sewage systems Research and requirements for system components The instrument used for measuring and recording the pressure and flow in systems Measurement of pressure and flow of water in water system of household ,multifamily and industrial buildings Leak testing of water and sewage system The study of energy efficiency pumps and pumping systems Sewer Inspections TV Pressure and flow test of hydrants Measurements of pressure during the water hammer Noise level measurements</p>		
Basic bibliography:		
<ol style="list-style-type: none"> 1. Chudzicki J., Sosnowski St.: Instalacje Wodociągowe , Wydawnictwo ?Seidel-Przywecki? Sp. z o.o., Warszawa 2009 2. Chudzicki J, Sosnowski St.: Instalacje Kanalizacyjne , Wydawnictwo ?Seidel-Przywecki? Sp. z o.o., Warszawa 2009 3. Barczyński A., Instalacje gazowe z miedzi Wyd. POLCEN, W-wa 1998 4. Switalski P. ABC techniki pompowej. Wyd. ZPBiP CEDOS Sp. z o.o. Wrocław 2008 5. Chudzicki J., Sosnowski St.: Instalacje Wodociągowe , Wydawnictwo ?Seidel-Przywecki? Sp. z o.o., Warszawa 2009 6. Chudzicki J, Sosnowski St.: Instalacje Kanalizacyjne , Wydawnictwo ?Seidel-Przywecki? Sp. z o.o., Warszawa 2009 7. Barczyński A., Instalacje gazowe z miedzi Wyd. POLCEN, W-wa 1998 8. Switalski P. ABC techniki pompowej. Wyd. ZPBiP CEDOS Sp. z o.o. Wrocław 2008 		
Additional bibliography:		
<ol style="list-style-type: none"> 1. Zbiór PN dotyczących wymagań i badania elementów instalacji oraz instalacji jako całości 2. Zbiór PN dotyczących wymagań i badania elementów instalacji oraz instalacji jako całości 		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in lectures	30	
2. Participation in the exercises auditorium	15	
3. Prepare to complete the course	15	
Student's workload		
Source of workload	hours	ECTS
Total workload	60	2
Contact hours	45	0
Practical activities	15	0