

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Sanitary and fire instalation systems		Code 1010101231010105181
Field of study Environmental Engineering First-cycle Studies	Profile of study (general academic, practical) (brak)	Year /Semester 2 / 3
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
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: 15		No. of credits 6
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
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		Responsible for subject / lecturer: dr inż. Przemysław Muszyński email: przemyslaw.muszynski@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	Captured knowledge of engineering graphics, fluid mechanics and materials science installation on the previous semesters Environmental Engineering
2	Skills	The use of computational models of fluid mechanics to solve engineering problems and principles of engineering graphics as well as the ability to use a graphics program AUTOCAD
3	Social competencies	Awareness of the need to acquire and expand knowledge to solve tasks competently, design technology and operate in the field of environmental engineering and participate in the development of technical progress.
Assumptions and objectives of the course:		
<ul style="list-style-type: none"> - Understanding the technical solutions and the principles of the internal water supply, sewerage, gas and fire prevention system - The acquisition of the ability to make calculations for the selection of the internal components of water supply systems, sewage, gas and fire as well as the performance of technical projects for these installations 		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. The student knows the technology and principles of internal plumbing-gas and fire [K_W01] - [[K_W01]] - [-] - [-] 2. The student knows the calculation method for the selection of system components and is able to perform the technical design of such facilities [K_W01] - [[K_W01]] - [-] - [-]		
Skills:		
1. He knows the technical solutions of internal water supply, sewage and gas [K_U01, K-U02] - [[K_U01, K-U02]] - [-] - [-] 2. Familiar with the construction and operation of pumping water and sewage pumping stations. [K_U02, K_U07] - [[K_U02, K_U07]] - [-] - [-] 3. He learned the elements and technical solutions compressed air systems and installations for oxygen and acetylene. [K_U02, K_U07] - [[K_U02, K_U07]] - [-] - [-] 4. He can choose the suitable size of the gas system components and compressed air. [K_U02, K_U07] - [[K_U02, K_U07]] - [-] - [-] 5. The student is able to perform an internal project to install water and sewage. [K_U02, K_U07] - [[K_U02, K_U07]] - [-] - [-]		
Social competencies:		

<p>1. The student is aware of the role of interior systems for the proper functioning of the buildings and processes [K-K07] - [[K-K07]] - [-] - [-]</p> <p>2. Students appreciate the thoroughness and accuracy of selection and sizing of internal to their proper operation and thereby meet the needs of its users [K_K02] - [[K_K02]] - [-] - [-]</p> <p>3. Is aware of the need for continuous improvement and improvement of professional knowledge and personal culture [K-K06] - [[K-K06]] - [-] - [-]</p>

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>-- Technical solutions internal plumbing and hot water and calculation methods for the selection of the elements of these installations</p> <ul style="list-style-type: none"> - Internal plumbing systems and methods for dimensioning of their components - Construction, rules for gas installations and the method of selection of the diameters of the various sections of the installation - Technical solutions for internal fire protection systems - Construction and operation of water and sewage pumping stations - method of calculating the compressed air system - Installation of Oxygen and Acetylene plants - Design of internal plumbing and sewage systems for multi-family building 		
Basic bibliography:		
<p>1. Chudzicki J., Sosnowski St.: Instalacje Wodociągowe , Wydawnictwo ?Seidel-Przywecki? Sp. z o.o., Warszawa 2009</p> <p>2. Chudzicki J, Sosnowski St.: Instalacje Kanalizacyjne , Wydawnictwo ?Seidel-Przywecki? Sp. z o.o., Warszawa 2009</p> <p>3. Szaflik W. Projektowanie instalacji ciepłej wody użytkowej w budynkach mieszkalnych. Wyd. Uczelniane Politechniki Szczecińskiej, Szczecin 2008.</p> <p>4. Switalski P. ABC techniki pompowej. Wyd. ZPBiP CEDOS Sp. z o.o. Wrocław 2008</p>		
Additional bibliography:		
<p>1. Chudzicki J. Sosnowski St. Instalacje wodociągowe i kanalizacyjne. Materiały pomocnicze do ćwiczeń. Oficyna Wydawnicza Politechniki Warszawskiej. Warszawa 2001</p>		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in lectures	30	
2. Participation in the exercises auditorium	15	
3. Participation in design classes	15	
4. Continue the exercise as part of your own work,	15	
5. Prepare to complete the course	10	
Student's workload		
Source of workload	hours	ECTS
Total workload	85	6
Contact hours	60	0
Practical activities	30	0