

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Chemistry		Code 1011101211010700133
Field of study Safety Engineering - Full-time studies - First-	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 1
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: - Laboratory: 30 Project/seminars: -		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 social sciences		ECTS distribution (number and %) 6 100%
Responsible for subject / lecturer: dr inż. Joanna Zembrzuska email: Joanna.Zembrzuska@put.poznan.pl tel. +48(61) 6652015 Wydział Technologii Chemicznej ul. Piotrowo 3 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	The student has knowledge of chemistry acquired while learning in secondary school, which is necessary to formulate and solve simple tasks in the field of chemistry.
2	Skills	The student knows how to analyze phenomena that occur around him. The student is able to assess the situations in which he is located.
3	Social competencies	The student is aware of the limitations of his own knowledge and understands the need for further learning.
Assumptions and objectives of the course: Systematizing and widening the knowledge of chemistry, acquiring identification skills, prediction and reduction of possible or present risks arising out of the use of chemical compounds.		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. The student has knowledge of chemistry that is necessary to study a given discipline, that is useful to formulate and solve simple tasks within the scope of the safety engineering - [K1A_W03]		
Skills: 1. The student can acquire, integrate, interpret data from literature, database or other properly matched sources, both in English or other foreign language accepted as an international language of communication within Safety Engineering, as well as to draw conclusions, formulate and justify opinions - [K1A_U01] 2. The student can create, both in English and Polish language, a well- documented report of problems within Safety Engineering, which present the results of their own research - [K1A_U03] 3. The student is able to plan and carry out experiments, including measuring, can interpret the results and draw conclusions. - [K1A_U08]		
Social competencies: 1. The student is aware of and understands the non-technical aspects and effects of chemicals, including their impact on the environment and the associated responsibility for decisions. - [K1A_K02] 2. The student is aware of the responsibility for their own work and is willing to comply with the principles of team work and bears responsibility for cooperative tasks. - [K1A_K03]		
Assessment methods of study outcomes		

<p>Formative assessment: Laboratories: on the basis of a class tests Lectures: on the basis of written or oral answers to the questions concerning the material from current and previous lectures</p> <p>Collective assessment: Laboratories: average of the grades achieved from the tests Lectures: test in the form of open questions. Credits will be given after answering at least 31% of questions.</p>		
Course description		
<p>1. The cycle of lectures will present the basics of inorganic chemistry including electromechanical corrosion of metals and protection methods against this process, along with the chemical structure of polymers. The lectures will also discuss the risks associated with exposure to chemicals (elements of Toxicology), identification and classification of risks, familiarizing with the construction and the information contained in the characteristics of a dangerous substance (in particular, the risk phrases H and the safety of the P),</p> <p>The student will be presented with the correct labelling of the packaging of a dangerous substance and a hazardous element; He will also be presented with the ways of reducing risks, procedures to be followed upon the occurrence of the risks associated with spills, scatter with a toxic substance, digestive or respiratory intoxication, chemical burns</p> <p>2. The cycle of practical sessions consists of 14 lab exercises covering the topics presented during the lectures.</p>		
Basic bibliography:		
<p>1. Bielański A., Podstawy chemii nieorganicznej, Tom 1 i 2, Wyd. Naukowe PWN, Warszawa, 2008. 2. Jones L., Atkins P.W., Chemia ogólna. Częsteczki, materia, reakcje, Wyd. Naukowe PWN, Warszawa, 2009. 3. Minczewski J., Marczenko Z., Chemia analityczna, Tom 1 i 2, Wyd. Naukowe PWN, Warszawa, 2007. 4. McMurry J., Chemia organiczna, Tom 1-5. Wyd. Naukowe PWN, Warszawa, 2009 .</p>		
Additional bibliography:		
<p>1. Kowal R., Bezpieczeństwo i higiena pracy przy stosowaniu substancji i preparatów chemicznych, Ośrodek Szkolenia PIP, Wrocław, 2006. 2. Wasilewski M., Dawydow W., Bezpieczeństwo w pracowni chemicznej, Wyd. Naukowo-Techniczne, Warszawa, 2008.</p>		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in lectures	30	
2. Participation in laboratories	30	
3. Preparation for laboratories	21	
4. Consultations of laboratories	20	
5. Consultation of lectures	15	
6. Preparation for an exam	14	
7. Overview of lab tests	10	
8. Exam	4	
9. Overview of test results	6	
Student's workload		
Source of workload	hours	ECTS
Total workload	150	6
Contact hours	105	5
Practical activities	30	1