

Information sheet for the course: Applied Chemistry

University: Alexander Dubček University of Trenčín	
Faculty: Faculty of Industrial Technologies in Púchov	
Course unit code: MI-P-2	Course unit title: Applied chemistry
Form, scope and method of educational activity:	
Form of study: Lecture / Seminar / Laboratory tutorial	
Recommended number of lessons (hours):	
Weekly: 2 / 2 / 2	During the semester: 24 / 24 / 24
Method of study: attendance method	
Number of credits: 6	
Recommended semester: 1	
Degree of study: The 1st degree of study	
Course prerequisites:	
Assessment methods:	
Assessment during the semester:	
Summary assessment of work results during the semester = 40 points	
Assessment during the semester will be awarded for active participation in lectures and seminars. At the seminars, it is necessary to write a paper on nomenclature and calculations for 10 points out of 20 points. A student can get a maximum of 20 points for participation in laboratory exercises and work reports	
Final assessment:	
Assessment of exam results = 60 points	
The exam will take place in written form. A minimum of 35 points is required to pass the exam	
Grading scale:	
Grade A: 91 – 100 points	
Grade B: 81 – 90 points	
Grade C: 71 – 80 points	
Grade D: 61 – 70 points	
Grade E: 55 – 60 points	
Grade FX: less than 55 points	
Learning outcomes of the course unit:	
The student has comprehensive information of a basic nature for understanding the inorganic chemistry of elements, compounds and materials. Knows the basic nomenclature of inorganic elements and compounds. Can prepare basic inorganic compounds in the laboratory and calculate individual amounts of reacting substances.	
Course contents:	
Chemical states of chemical substances - their basic characteristics.	
Chemical thermodynamics: internal energy and enthalpy and their importance.	
Entropy and Gibbs energy, conditions of arbitrariness of events.	
Equilibrium of a chemical reaction, equilibrium constant.	
Rate of chemical reaction, rate equations.	
Effect of concentration, temperature and catalyst on the rate of chemical reaction.	
Acids and bases from the point of view of Arrhenius, Brønsted and Lewis theory.	
Protolytic reactions: autoprotolysis and neutralization, hydrolysis of anions and cations.	
Excretory reactions: types of excretory reactions, solubility product.	
Complexing reactions: complex, coordination compound, chromophore.	
Oxidation-reduction reactions: oxidizer, reducer, electrode potentials of metals. Nernst equation.	
Quantum mechanics: wave function, quantum numbers, atomic orbitals.	
Pauli principle, Hund's rule, construction principle, electron configuration of atoms and ions.	
The physical nature of the chemical bond and its characteristics.	
Types of chemical bonds and their nature.	
Electrical, magnetic, optical and thermal properties of inorganic substances.	

Recommended of required reading:

JÓNA, E., ONDRUŠOVÁ, D., PAJTÁŠOVÁ, M.: Priemyselná anorganická chémia I: Všeobecná časť EAN 9788080752378. ISBN: 978-80-8075-237-8, r. 2007.

GARAJ, J.: Chémia – učebné texty pre nechemické odbory, Trenčín 2005.

KOHOUT, J., MELNÍK, M.: Anorganická chémia 1: Základy anorganickej chémie. STU Bratislava 1997. ISBN: 80-227-0972-7.

E-learning TnUAD.

Language:

English

Remarks:

Compulsory course / Profile course

Evaluation history: 0

Total number of graded students:

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

Lecturers: doc. Ing. Katarína Moricová, PhD., Ing. Andrea Feriancová, PhD.

Last modification: 31.08.2022

Supervisor: doc. Ing. Jan Krmela, Ph.D.