

Level: specialist				
Course title: SELECTED SPECIAL CHEMICAL EXPERIMENTS IN TEACHING SPH608				
Status: elective				
ECTS: 5				
Requirements: none				
Learning objectives Focusing the attention to the most interesting and most important chemical reactions. Expanding the knowledge in practical chemistry through special chemical reactions and processes.				
Learning outcomes New views on chemical practice and modernization of knowledge in chemistry.				
Syllabus <i>Theoretical instruction:</i> Structure of the matter and chemical bonds nature. Crystal structure and bond energy. Fundamentals of chemical kinetics, gas laws, chemical equilibrium and chemical reactions' rate. Structure of hydrogen atom and spectra of atoms and molecules. Electro-chemical and optical phenomena in chemical reactions. Nature of metals, metal bonds and alloys. Dangerous and harmful chemical substances. <i>Practical instruction:</i> Experimental demonstration of phenomena and terms from kinetic theory of gases, Avogadro's law and corpuscular nature of gaseous substances. Qualitative and quantitative aspects of chemical equilibrium. Dynamic properties of equilibrium reactions, modelling the process of dissolution, special experiments related to the process of precipitation reactions, crystallization and processes on active surface. The spectral lines of the hydrogen atoms and experimental verification of atoms and molecules, by linear and continuous spectra. The solar spectrum, the spectrum of hydrogen and halogen lamps. Experimental determination of the molecular formula, the characteristic reactions of carbon compounds (organic compounds). Characteristic reactions by which they differ certain isomers. Obtaining and analysis of polymers. Networking and special polymer reactions. Reactions of certain halogen derivates, organo-fluorine compounds. Working with dangerous and aggressive chemical substances.				
Weekly teaching load				Other:
Lectures: 2	Exercises:	Other forms of teaching: 2	Student research:	