

Level: bachelor academic studies in Physics, Bachelor of Honours in Physics Teaching			
Course title: Chemistry			
Status: obligatory			
ECTS: 5			
Requirements: none			
Learning objectives Acquiring modern knowledge from the structure of atoms and molecules, with emphasis on the relation between the chemical structure and properties of elements and compounds.			
Learning outcomes After taking the course, the student should have developed: General abilities: basic knowledge of this field, following the literature, analysis of various solutions and the choice of the most adequate solution, application in practice and other subjects. Subject-specific abilities: knowledge of the modern chemistry representing the basis for higher courses.			
Syllabus <i>Theoretical instruction</i> Chemistry, object of study, its role and place in the system of basic and applied science. Basic chemistry principles. The periodic classification of the elements. Modern Theory of Atomic Structure. Periodic trends in properties of chemical elements. Chemical bonding (ionic, covalent and metallic bonds). Coordination-covalent bonding. State of matter. Solutions. Chemical kinetics (equilibrium constant, rate constant). Theories of acids and bases. Homogenous and heterogeneous equilibriums. Redox reactions. Properties of elements and their compounds. <i>Practical instruction</i> Laboratory practice. Separation of mixtures. Major types of inorganic compounds. Solutions. Features of diluted solutions. Rate constant and equilibrium constant. Strong and weak electrolytes. Coordination compounds. Redox reactions. Properties of selected elements and their compounds (metals and nonmetals).			
Weekly teaching load			Other:
Lectures: 3	Exercises: 0	Other forms of teaching: 3	