

Level: bachelor				
Course title: Methodology of chemistry teaching I				
Course status: elective				
ECTS: 8				
Requirements: none				
Learning objectives Initial training of students-future chemistry professors for inclusion in teaching process.				
Learning outcomes To critically assess the importance and the role of chemical education in modern society; differ between Chemistry and Methodology of chemistry teaching as academic disciplines and teaching subjects; analyze the development of scientific knowledge in chemistry throughout history; define characteristics of learning in chemistry and differ macroscopic, submicroscopic and symbolic levels of representation in chemistry; critically assess the relationship of goals and outcomes of chemistry courses at different levels and different profiles of education; define and explain the elements of the organizational structure of teaching chemistry; apply didactic principles in the organization of modern teaching process of chemistry; apply scientific criteria and steadiness to the age of the students in the selection of teaching content in chemistry; organize and present the structure of chemical knowledge.				
Syllabus <i>Theoretical instruction</i> The subject of studying of Chemistry teaching methodology. Methodology of chemistry teaching in the system of scientific disciplines. Chemistry as a natural science and as a teaching subject. The objectives of teaching chemistry at different levels and profiles of education. The expected outcomes in chemistry teaching. Specificities and characteristics of cognition in chemistry. Organizational structure of chemistry teaching: the teaching subject, teaching area, teaching content, teaching unit. Didactic principles in chemistry teaching. Chemistry teaching contents and criteria for their selection. Deployment of chemical teaching content: concentric, linear and spiral timetable. Analysis of the curriculum of chemistry. Correlation of teaching content in chemistry: external, internal, vertical and horizontal correlation. The coordination of chemistry with other teaching subjects. Chemistry in integrated teaching of natural sciences. Chemical contents in other teaching subjects. System of knowledge in chemistry: representations, terms, definitions, laws and theories in chemistry. Chemical language: chemical symbols, terminology and nomenclature. The formation and development of the chemical language in teaching. <i>Practical instruction: Exercises, Other forms of teaching, Study research work</i> Analysis of chemistry syllabus and modelling of desired knowledge structures in selected teaching chemistry topics. Defining the expected outcomes of teaching chemistry by selected topics. The formation and development of basic chemical concepts. Analysis of the basic concepts of chemistry teaching: corpuscular concept, the preservation concept, the concept of equilibrium, acids and bases concept. Laboratory exercises of the selection of demonstration experiments for General and Inorganic Chemistry.				
Weekly teaching load				Other:
Lectures: 3	Exercises: 3	Other forms of teaching:	Student research:	

