



УНИВЕРЗИТЕТ У БАЊОЈ ЛУЦИ
UNIVERSITY OF BANJA LUKA
ПРИРОДНО-МАТЕМАТИЧКИ ФАКУЛТЕТ
FACULTY OF NATURAL SCIENCES AND MATHEMATICS



CHEMISTRY DEPARTMENT

FIRST CYCLE OF STUDY

Chemistry/Chemistry Education

Course name	Physical Chemistry 2			
Course code	Course status	Semester	Hours of instruction	ECTS
1C16HOS401	required	IV	2+3	7
Teacher(s)	Prof. Dijana Jelić, PhD			

Prerequisite course(s)	Entry requirements
General Chemistry, Inorganic Chemistry, Physics 1	passed

Course goals
The aim of the course in the field of Physical Chemistry 2 is to acquaint the student in more detail with the phases in the system, processes within the phases and at the phase boundary and equilibrium conditions. Also, colligative properties of the solution, as well as, the chemical kinetics (mechanism of chemical reactions and formal kinetics) are part of Physical Chemistry 2.

Learning outcomes
Upon mastering the exam, the student knows how to determine the number of phases in the system, interprets phase diagrams, as well as to determine the content of the eutectic mixture. The student is trained to consider the properties of infinitely dilute solutions. Student can explain the mechanism of a chemical reaction and determine all the kinetic parameters of appropriate reaction.

Course content
Physical equilibrium. Gibbs phase rule. Thermal analysis. State diagram. Colligative properties. Chemical equilibria, spontaneous chemical reactions, formal chemical kinetics, chemical reaction rate, laws and constants of chemical reaction rate, order and molecularity of reaction, dependence of reaction rate on temperature. <i>Experimental part</i> Determination of phases using the Gibbs phase rule. Raising the boiling point, Lowering the freezing point. Determination of Arrhenius parameters.

Teaching methods
Lectures, computational exercises, laboratory exercises; Oral exam

Books and other learning materials
N. Čegar, J. Penavin-Škundrić, B. Škundrić, Osnovi hemijske termodinamike, Banjaluka, 2006 I. D. Holclajtner Antunović, Opšti kurs fizičke hemije, Zavod za udžbenike i nastavna sredstva, Beograd, 2000 D. Malešev, Odabrana poglavlja fizičke hemije, Farmaceutski fakultet, Beograd, 2003; P. W. Atkins, Physical Chemistry, Oxford, University Press; M. Juranji, Fizička hemija, Zbirka rješениh zadataka, Univerzitet u Novom Sadu, Edicija Univerzitetski udžbenik, Novi Sad 1998

Course activities and grading method
Laboratory exercises are a condition for taking the exam. Students take two tests (theory and calculations – 51%). The first test is in the field of physical balance. The second test is from colligative properties. Oral exam.

Laboratory exercises	10	Test - Theory	15
Test - calculations	15	Final exam	60

Additional course notes
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Name of the teacher who prepared this form	Prof. dr Dijana Jelić, PhD
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