

Study programme: Food Technology			
Type and level of study: Bachelor's degree (240 ECTS) – First cycle			
Course title: Physical Chemistry 1			
Lecturer: Ass. Prof. Igor Đurović, PhD			
Language of instruction: English			
ECTS credits: 7			
Prerequisite:			
Semester: <i>summer</i>			
Course objective Training students for monitoring and understanding the issues that are being studied in the professional objects. Acquired knowledge in the Physical Chemistry 1 course is essential for understanding the process production in the food industry and a precondition for the good management of the process in the production of healthcare safe food and quality control of final products.			
Learning outcomes Understanding of fundamental laws in Physical Chemistry Analytical approach to problems and the use of theoretical and experimental knowledge in practice Training for individual creative work, independent organization and management of individual processes in the food industry and introduction innovation in the production process.			
Course contents <i>Theoretical instruction</i> Introduction to chemical thermodynamics and the principle of energy maintenance. Second and third law thermodynamics. Balance and a spontaneous process in a closed system. Thermodynamic properties multicomponent homogeneous system. Balance conditions of phase transformation phases. Equilibrium phase in liquid and gaseous state in the two components systems. Balance of liquid and solid phases in the two components systems. Heat of chemical reaction. Chemical affinity. Surface phenomena. Chemical kinetics. Chemical balance. <i>Practical instruction</i> Practical classes consist of experimental exercises and computational tasks from the Physical Chemistry 1 materials customized teaching level in the Food Technology study program.			
Recommended reading 1. Đorđević, S. Dražić V. (2005): Physical Chemistry. TMF, Belgrade, p..692 2. Minić, D., Antić-Jovanović, A. (2005): Physical Chemistry. Faculty of Physical Chemistry, Belgrade, p..626 3. Ovcin, D., Jovanović, D., Dražić, V., Maksimović, M., Jakovljević-Halai, N., Vračar, Lj., Jovanović, S., Jeremić, K., Šepa, D., Vojinović, M. (1996): Physical Chemistry-workbook. TMF, Belgrade, p..420 4. Vračar, Lj., Despić, A., Dražić, V., Zečević, S., Jeremić, K., Jovanović, D., Jovanović, S., Maksimović, M., Nikolić, B., Ovcin, D., Šepa, D. (2001): Experimental Physical Chemistry. TMF, Belgrade, p..350 5. Gutman, I., Radenković, S., (2008): Physical Chemistry 1-Workbook.PMF, Kragujevac, p 66			
Hours of active teaching 3+1+1			Other classes
Lectures: 3x15=45	Practicals: 1x15=15	Other forms of teaching Tutorials 1x15=15	Individual work:
Teaching methods <ul style="list-style-type: none"> Interactive lectures using video presentation , with the active participation of students . Individual consultations on issues arising from theoretical and practical teaching , laboratory exercises involving the work of appropriate instruments and devices. Lectures are held in modernised classrooms using modern devices and teaching aids. 			
Assessment (maximum points 100)			
Examination requirements	Points	Final examination	Points
Class participation	5	oral examination	55
Practical sessions/tests	10	written examination	(25)
Class tests	30	
Other			
Grading system			
Grade	ECTS	Description	
10	91-100	Excellent	
9	81-90	Exceptionally good	
8	71-80	Very good	
7	61-70	Good	
6	51-60	Passing	
5	≤50	Failing	