UNIVERSITY OF PANNONIA

COURSE DATASHEET

Semester:	2015/16/1
Course:	Colloid Chemistry II.
Code:	VEMKFKB154B
Responsible department:	Department of Physical Chemistry
Department code:	MKFK
Responsible instructor:	dr. Tamás Kristóf

Course objectives:

Deepening knowledge of colloid chemistry through selected topics, numerical examples and laboratory work.

Course content:

Selected topics: Adsorption of vapour and gas - adsorption theories. Stability of disperse systems. Microemulsions. Liquid crystals II. Effect of polydispersity on equilibrium colloid systems. Magnetic fluids. Membrane processes, osmotic processes, filtration. Mechanical activation by fine grinding. Solubility of polimers, swelling of polimer gels. Complex rheological models, concentrated suspensions. Numerical examples. Adsorption from carbonic acid aqueous solutions on activated carbon: adsorption isotherms. Properties of an ionic surfactant: solutions, micelles, Krafft point, solubilization. Surface tension measurement in soap solutions by Traube stalagmometer. Sedimentation analysis using Schöne apparatus. Gelation time of silicic acid sol: investigation of concentration, temperature and pH dependence. Viscosity of non-newtonian liquid: viscosity measurement in Gelatin sol by Ostwald viscometer. Examination of the gelation of starch by rotation viscometer. Surface tension of alcohols and aqueous carbonic acid solutions: Szyszkowski isoterm. Swelling of Gelatin in function of temperature or pH. Phase inversion of emulsions: demonstration of phase inversion in (vegetable oil + water) system upon addition of electrolyte or change of phase volume ratio.

Requirements, evaluation and grading:

Accomplishment of the measurements. The measurements and calculations have to be reported. Grading is based on the total points given for the measurements and an oral plus a written test about the theoretical backgrounds.

Required and recommended readings:

Atkins,W.,P.: Physical Chemistry, Oxford University Press, 1990. Buzágh, A.: A kolloidika praktikuma. Tankönyvkiadó. Budapest, 1962. Szántó Ferenc: A kolloidkémia alapjai. Gondolat, Budapest, 1987. Rohsetzer Sándor: Kolloidika. Tankönyvkiadó, Budapest, 1991. Shaw, D. J.: Bevezetés a kolloid- és felületi kémiába, Műszaki Könyvkiadó, Budapest, 1986. Hunter, R. J.: Foundations of Colloid Science, I-II., Clarendon Press, Oxford, 1995. Adamson, A.W.: Physical Chemistry of Surfaces. Wiley & Sons. New York, 1976.