



## COURSE DATASHEET

<b>Semester:</b>	2016/17/1
<b>Course:</b>	Chemical basics of water and wastewater treatment
<b>Code:</b>	NKMKAKT115V
<b>Responsible department:</b>	
<b>Department code:</b>	MKNK
<b>Responsible instructor:</b>	Dr. Lajos Fodor

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### Course objectives:

To acquire the basic knowledge of chemistry. To acquire the comprehensive chemical knowledge particularly with regard to chemicals used in water treatment.

### Course content:

An introduction to chemical thermodynamics. Thermodynamics of phase and chemical equilibria (special cases of phase equilibria, osmosis, heterogeneous chemical equilibria, equilibria in electrolyte solutions). Electrochemical potential. Heterogeneous electrochemical equilibria. Electrical double layer. Electric potential. Electrodes and electrode reactions. Transport phenomena in electrolyte solutions. Diffusion, ionic mobility, conductivity electrolytes. Electrokinetic phenomena. Reaction kinetics: rate of chemical reactions, the order of the reaction, simple and complex reactions, equilibrium reactions. Basics of colloidal chemistry: dispers systems, properties of colloids, interfacial phenomena, (surface tension, interfacial tension, adsorption, wetting), stability of colloidal systems. Most important organic compounds in water treatment (surfactants, biocides, complexing agents).

### Requirements, evaluation and grading:

After a half an hour's preparation the examinee gives an oral presentation on the topic for about 20-25 minutes.

### Required and recommended readings:

Horváth Attila, Sebestyén Attila, Zábó Magdolna: Általános Kémia, Veszprémi Egyetemi Kiadó, 1991.; Bodor Endre: Szeretlen Kémia I., Veszprémi Egyetemi Kiadó, 1994.; Cotton F. A., Wilkinson G.: Basic Inorganic Chemistry, J. Wiley and Sons, New York, 1976.; Liszi, J., Ruff, I., Schiller, R., Varsányi, Gy.: Bevezetés a fizikai kémiába, Műszaki Könyvkiadó, Budapest, 1993.; Szántó F.: A kolloidkémia alapjai. Szeged, JATEPress, 1986.; Patzkó Á.: Kolloidika laboratóriumi gyakorlatok. Szeged, JATEPress, 1996.