UNIVERSITY OF PANNONIA

SUBJECT DATASHEET

Semester:	2010/11/1
Subject:	Program Solving Practice In Physical Chemistry I.
Code:	VEMKFK2223V
Responsible department:	Department of Physical Chemistry
Responsible department code:	MKFK
Responsible lecturer:	dr. Mónika Valiskó

Educational objectives:

Teach physical chemistry via numerical examples.

Detailed content of the subject:

Basic of thermodynamics, Equilibrium. Thermal energy. Internal energy. Work, volumetric work, cycles. The laws of thermodynamics, Carnot-efficiency. Refrigerators. Entropy, enthalpy, free energy, free enthalpy Thermochemistry: Hess-law, Kirchhoff-equation Maxwell-relations. Volumetric properties and heat capacities. U, H and S as functions of p, V and T. Changes in F, G, Energy functions Thermodynamic properties of perfect gases. Changes of state. The Poisson-equation. p-V-T surface for real gas, Fugacity, Virial equation, van der Waals equation, Principle of corresponding states, properties of real gases, Joule-Thomson effect Calculation of electric and magnetic properties of molecules. Crystal energy from Born-Haber cycle. Thermodynamics properties of crystals, Hagen-Poiseuille law Mixtures. Gaseous mixtures. Partial molar quantities. Ideal mixtures, ?G, ?S. The activity, reference states. Relationships between activities. Real mixtures, excess properties. Transport properties.. Diffusion in perfect gases. Diffusion in condensed phases. Conductivity of electroliyte solutions. Ionic mobility.

Requirements:

The attendance of the practices and the solution of a test at the end of the semester are obligatory.

Required and suggested references:

1. Liszi, J.: Fizikai kémia, Veszprém, 1993. Kézirat. 2. Liszi, J., Ruff, I., Schiller, R., Varsányi, Gy.: Bevezetés a fizikai kémiába, Műszaki Könyvkiadó, Budapest, 1993. 3. Atkins,W.,P.: Fizikai Kémia I-III., Tankönyvkiadó, Budapest, 1990. 4. Tanszéki munkaközösség: Fizikai kémiai példatár I-II. Veszprém, 1995.