|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1. Course title: Physical Chem. II. Pract. | | | | | |
|  | | | | |
| 2. Code: | | 3. Type (lecture, practice etc.): lab. practice | | | |
|  | | | | |
| 4. Contact hours: 3 hoursper week | | 5. Number of credits (ECTS): 4 | | | |
|  | | | | |
| 6. Preliminary conditions (max. 3):  Physical Chemistry I. lect. | | | | | |
|  | | | | |
| 7. Announced: fall semesters.  spring semester, both | | | | | |
|  | | | | |
| 8. Limit for participants: - | | | | | |
|  | | | | |
| 10. Responsible teacher (faculty, institute and department):  Barna Kovács, PhD (Faculty of Science, Institute of Chemistry, Department of General and Physical Chemistry) | | | | | |
|  | | | | |
| 11. Teacher(s) and percentage: | | Dr. Barna Kovács | | 100 % | |
|  | |  | |
|  | |  | |
|  | |  | |
|  | |  | |
|  | | | | |
| 12. Language:English | | | | | |
|  | | | | |
| 13. Course objectives and/or learning outcomes: During the laboratory practice the students are learning about the basic measuring methods such as calorymetric, potentiometric, conductivity, voltammetric, spectrophotometric and polarization measurements. They are determining fundamental thermodynamic and reaction kinetic quantities, they are analyzing phase-equilibria, adsorption equilibrium and different type of dissociation equilibria. | | | | | |
|  | | | | |
| 14. Course outline   1. Safety rules, general instructions, note book format. 2. Determination of the rate constant of a first order reaction. 3. Examination of the ionic strength effect on the reaction rate. 4. Iodine-clock reaction. 5. Investigating the temperature dependence of drug decomposition. 6. [Electrochemical study of the catalytic oxidation of vitamin C](http://kemia.ttk.pte.hu/pages/fizkem/oktatas/gyogyszeresz/phys_chem.pdf). 7. Test. 8. [Determination of pK of weak acid by conductivity](http://kemia.ttk.pte.hu/pages/fizkem/oktatas/gyogyszeresz/phys_chem.pdf). 9. Voltammetry at Solid Electrodes. 10. Determination of selectivity coefficient of ion selective electrode. 11. Determination of the composition of a complex. 12. Examination of catalytic, promotor and inhibition effects. 13. Test. | | | | | |
|  | | | | |
| 15. Mid-semester works  Written tests on the 7th and 13th weeks | | | | | |
|  | | | | |
| 16. Course requirements and grading  The laboratory measuring problems and the written tests must be solved with success. (At least mark 2 must be obtained). Absence from laboratory exercise is not allowed. Only one absence is tolerated per semester upon presenting bad health certificate from an official physician. The student checks the forthcoming subject. She/he reads the manuals, texts provided, and studies the theoretical backgrounds. | | | | | |
|  | | | | |
| 17. List of readings   1. Kovács Barna, Kunsági Máté Sándor: Fizikai Kémiai Gyakorlatok, (praktikum) PTE 1997 2. Peter Atkins, Julio de Paula: Physical Chemistry, W. H. Freeman and Company, New York, 2010. | | | | | |
|  | | | | |
| 18. Recommended texts, further readings   1. Peter Atkins, Julio de Paula: Physical Chemistry, W. H. Freeman and Company, New York, 2010. | | | | | |
|  | | | | |
| **Date** | 13 April, 2017 | **Prepared by** |  | | |
| Barna KOVÁCS, PhD  responsible lecturer | | |
|  | | | | |
| **Endorsed by** | | |  | | |
| Dr. László Kollár, DSc program supervisor | | |