



## COURSE DATASHEET

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| <b>Semester:</b>               | 2015/16/1   |
| <b>Course:</b>                 | Laboratory Practices from General and Inorganic Chemistry |
| <b>Code:</b>                   | VEMKAKB233B   |
| <b>Responsible department:</b> | Department of General and Inorganic Chemistry             |
| <b>Department code:</b>        | MKAK  |
| <b>Responsible instructor:</b> | dr. Zsolt Valicsek  |

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### Course objectives:

To get acquainted with fundamental tools and measuring, operations in chemical laboratory, to attain practice. Knowledge of materials and most important reactions of inorganic chemistry, practice in fundamental chemical operation.

### Course content:

1. General information. Introduction of the program of the laboratory practice. Division into groups. Safety regulations. Introduction of tools and fundamental operations: measurements of mass, volume, and temperature; filtration. 2. Examination paper on safety regulations. Preparation of two types solutions (by dilutions of concentrated solution of an acid, or by solution of solid materials) Solubility (effect of temperature, concentration, solvent) 3. Atmospheric distillation. Measuring of density with pycnometer. 4. Calibration of volumetric glassware and titration with the use of calibrated implements. 5. Measuring of vapour density (molecular weight) by modified Victor-Mayer method. 6. Measuring of boiling point. Study of colligative properties. 7. Simple preparative task. 8. Observation of pH, acid-base reactions, hydrolysis. 9. Formation and dissolution of precipitates. Complex formation (ammine and hydroxo complexes) 10. Formation and dissolution of precipitates. Complex formation (fluoro, iodo, cyano and etc. complexes) 11. Study of redox reactions. Gas evolution and detection. 12. Study of redox reactions. 13. Study of redox reactions. Metal ions 14. Few selected spectacular experiments, flame colouring (alkaline-, alkaline earth metal), study of some element 15. Final examination paper

### Requirements, evaluation and grading:

Successful examination paper on safety regulations. The experiments are to be performed, the measurements and calculations have to be reported. The mark of the practice is based on the total points given for the measurements, the written tests about the theoretical background, and the final examination paper. Three theoretical tests are to be written during the semester and from those altogether minimum of 43 % has to be achieved. The condition of the pass mark is a satisfactory level of the tests and the measurements as well as the final examination paper.

### Required and recommended readings:

Általános kémiai laboratóriumi gyakorlatok, Összeállította a tanszéki munkaközösség, VE, 1994. Szervetlen kémiai reakciók, (Szerk. Welther Károlyné), VE, 1993. Barcza L.: A minőségi kémiai analízis alapjai, Medicina, Bp. 1989. Erdey L. : Bevezetés a kémiai analízisbe, Tankönyvkiadó, Bp. 1961