



## COURSE DATASHEET

<b>Semester:</b>	2012/13/1
<b>Course:</b>	Chemical analysis III.
<b>Code:</b>	VEMKKAB164V
<b>Responsible department:</b>	Department of Analytical Chemistry
<b>Department code:</b>	MKKA
<b>Responsible instructor:</b>	dr. Tamás Pap

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### Course objectives:

Understanding of the principles of modern industrial monitoring

### Course content:

1.Characteristics of the analytical methods: sensitivity, repeatability, reproducibility, selectivity, limit of detection, limit of quantitation. 2.General characteristics of the analytical instruments: stability, response time, time constant, 3.Measurement of intensive physical property. Measurement of absorption of the electromagnetic radiation. 4.Continuous determination of gas components (SO<sub>2</sub>, NO<sub>2</sub> etc.) and light absorption compounds in solutions (for example: chloride in hydrochloric acid). 5.Measurement of light scattering and turbidity of solutions. 6.Analysis of smoke (Continuous determination of CO and CO<sub>2</sub>) . 7.Measurement of optical activity. Determination of oxygen content. 8. Measurement of intensive physical property related to chemical reactions. 9. Potentiometric sensors. Spectrometric analysers for determination of components of the industrial water. 10. Semi-conductor ion-selective electrodes, gaselectrods for high temperature. 11. Termometric and piezoelectric quartz-crystal detectors. 12. Chemical analysers based on the chemical compensation and the measurement of the physical property. Automatic titrators. Continuous acid-base and redox titrations. 13. Continuous determination of SO<sub>2</sub> in air by coulometric method. 14. Two dimension analysers for multi elements determination. Nondestructive material testing. Measurement of colour. Calculation of composition of industrial paints.

### Requirements, evaluation and grading:

The topics of the lectures and the accomplishment of the allocated measurements.

### Required and recommended readings:

Inczédy János: Folyamatos és automatikus analízis. Műszaki Könyvkiadó, Budapest, 1984.