

COURSE TITLE:

MODERN INSTRUMENTAL METHODS IN ENVIRONMENTAL ANALYSIS

COURSE DESCRIPTION:

Principles of Gas Chromatography (GC). Instrumental setup: carrier gases, injection techniques, types of GC columns, stationary phases in GSC and GLC. GC detectors (FID and EC). General properties of detectors. Qualitative and quantitative analysis. The significance of Kovats Retention Indices in qualitative GC analysis. Calibration methods: external and internal standard methods. Derivatization in GC. Principles of Electron Ionization mass spectrometric detection. Electron source and fragmentation pattern. Types of analyzers and vacuum devices. Principles of SPE sample pretreatment technique.

Organic micropollutant measurements by GC-MS from waste -, river and drinking water samples.

Competences:

Students have a good grounding in the core areas of chemistry (inorganic, organic, physical, biological and classical analytical chemistry) and in addition the necessary background in mathematics and physics.

Students have the ability to apply their knowledge and understanding gained and modern techniques to practices that require analytical skills and knowledge integration, including research, and the ability to assess research results and determine their reliability

LITERATURE:

1, Slides of the lectures on my personal webpage:

<http://www.chem.elte.hu/departments/anal/vasanits/>

2, Francis Rouessac and Annick Rouessac: Chemical Analysis Modern Instrumentation Methods and Techniques Second Edition 2007 by John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex PO19 8SQ, England, Chapters: 2 and 16.

3, Scientific papers related to our research projects (see in my CV, Publications)

TEACHER:

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