

<b>Title of course:</b> <b>Environmental analytics</b>	<b>NEPTUN-code:</b> RKXKA1EBNE	<b>Weekly classes:</b> <i>lecture+workshop+lab work</i> 1+0+2	<b>Credit: 3</b> <b>Exam type.: e</b>
<b>Course leader:</b> Ágnes Bálint-Mészáros, Dr.	<b>Position:</b> associate professor	<b>Required preliminary knowledge (with Neptun code):</b> RKXAK1ABNE	
<b>Curriculum:</b>			
<p>Due to the human activity a large number of pollutant got into the environment. Therefore became important the detection of toxic substances in our environment. This is a possible tool the environmental analysis.</p> <p>The environmental analytical chemistry uses the methods of analytical chemistry and other technics to study the environment. The primary goal is to introduce sampling of different environmental components (the atmosphere, above-ground water and groundwater and soil) to study, that these samples are polluted or not by organic and inorganic toxic substances.</p> <p>We present the physical and chemistry bases of the environment protection analytics.</p> <p>We present the different validation methods and we talk about the importance of the standardisation.</p> <p>The students recognise the different sampling methods and sample preparation procedures.</p> <p>We review the atom and molecule spectroscopy procedures.</p> <p>The most important separation technical methods will be presented.</p> <p>During the laboratory practices will be applied the methods for environmental samples, which were studied during the lectures. The students prepare the environmental samples for measurement and measure the concentration of different pollutants (organic and inorganic) by analytical devices.</p>			
<b>Professional competencies:</b>			
<p>Knowledge of general and specific mathematical, natural and social scientific principles, rules, relations, and procedures as required to pursue activities in the special field of environment protection.</p> <p>Knowledge of the learning, knowledge acquisition, and data collection methods of the special fields of environment protection, their ethical limitations and problem solving techniques.</p> <p>Knowledge of major environmental technologies, equipment and structures associated with each technology, including the functioning and operation thereof.</p> <p>Able to perform basic tests of the quantity and quality characteristics of environmental elements and systems by state-of-the-art measuring instruments; to draw up and implement measurement plans; and to evaluate data.</p> <p>Able to participate creatively in engineering work based on their multidisciplinary skills, as well as to adapt to continuously changing circumstances.</p> <p>Undertaking and authentically representing the social role of environment protection, its basic relationship with the world.</p> <p>Constantly upgrading their knowledge of environment protection by attending organized professional development training courses.</p> <p>Taking responsibility towards society for their decisions made in the scope of environment protection.</p>			
<b>Literature</b>			

1. Roger N. Reeve: Introduction to Environmental Analysis, Wiley, 2002, ISBN 0-471-49295-7
2. Chunlong Zhang: Fundamentals of Environmental Sampling and Analysis, Wiley, ISBN: 978-0-471-71097-4, 456 pages April 2007
3. Editors: Baranowska, Irena (Ed.): Handbook of Trace Analysis, Fundamentals and Applications, Springer International Publishing Switzerland, 2016, ISBN 978-3-319-19614-5
Comment: