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| **Study program** Applied chemistry with the management basics |
| **Course title** Environmental analytical chemistry (H256C) |
| **Name of lecturer/lecturers** Sofija M. Rančić |
| **Type of course** Elective |
| **Number of ECTS allocated** 6 |
| **Course objectives**Introducing the students with the application of different methods of analytical chemistry in monitoring of quality parameters of environment, methods of sampling, storage, and preparation of different types of samples (water, air, and soil). |
| **Course outcomes**Upon successful completion of this course, students are able to:- enumerate many analytical methods that are applied in the analysis of samples from the environment,- properly take, store, and prepare samples from the environment (water, air, soil),- precise and accurate measure applying appropriate analytical methods,- interpret measurement results and draw conclusions about the quality of analytical information,- recognize an analytical problem and find an appropriate method to solve it. |
| **SYLLABUS***Lectures*The place of classical and instrumental methods in the analysis of environmental quality parameters. Analysis of water. Taking, storing, and preparing water samples. Application of analytical methods to determine basic water quality parameters. Determination of inorganic pollutants. Determination of organic pollutants. Continuous and discontinuous methods of analysis of natural, waste and drinking water. Application of analytical method in soil analysis. Soil sampling and sample preparation for analysis. Analytical methods for air analysis. Air sampling. Solid adsorbents. Diffusion tubes. Gas detectors. Measurement network and real-time monitoring. Sensors with remote measurement. Quality control of the measured data.*Laboratory work*Determination of ammonia in water. Determination of copper in water by spectrophotometric method. Determination of phosphates in wastewater. Determination of phenol in water. Determination of heavy metals in soil. Determination of sulfur (IV)-oxide in the air. |
| **References**1. S. Rančić, T. Anđelković, Analitička hemija životne sredine, Niš, 2010.2. C. H. Walker, S. P. Hopkin, R. M. Silby, D. B. Peakall, Principles of Ecotoxicology, London, 2006.3. M. Radivojević, V. N. Bashkin, Practical environmental chemistry, Cambridge, Royal society of chemistry,1999. |
| **Active teaching classes** | **Lectures** 30 | **Laboratory work** 30 |
| **Teaching mode**Lectures, laboratory exercises, demonstrations, consultations. |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** |
| **Pre exam duties** | **Points** | **Final exam**  | **Points** |
| Activity during lectures | 5 | Written examination | 25 |
| Practical teaching | 25 | Oral examination | 25 |
| Teaching colloquia | 20 |  |  |
| Seminar |  |  |  |