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| <b>Level:</b> bachelor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |                                    |                   |        |
| <b>Course title:</b> Fundamentals of environmental quality control                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                     |                                    |                   |        |
| <b>Status:</b> obligatory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |                                    |                   |        |
| <b>ECTS:</b> 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                     |                                    |                   |        |
| <b>Requirements:</b> none                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                     |                                    |                   |        |
| <b>Learning objectives</b><br>Understanding the theoretical basis and obtaining the basic laboratory skills for application of analytic techniques used to evaluate and control the quality of the environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                     |                                    |                   |        |
| <b>Learning outcomes</b><br>Students should be able to explain the importance of chemical analysis in the quality control of the environment, to properly and safely handle chemicals and laboratory equipment; define and apply the basic principles of gravimetric and volumetric methods of analysis of environmental samples; apply simple techniques of sample preparation, apply basic statistical knowledge to compute the error of chemical analysis, display and analyze data obtained by chemical analysis; solve computational tasks from stoichiometry.                                                                                                                                                                                                                       |                     |                                    |                   |        |
| <b>Syllabus</b><br><i>Theoretical instruction</i><br>The nature and significance of chemical analysis in quality control. Chemicals, apparatus and basic procedures in the analysis. Analytical process and the types of analysis. Fundamentals of quantitative analytical measurements of environmental medium. Assessment of the quality of environmental samples using volumetric analysis. Acid-base titration, oxidation-reduction titration, complexometric titration and sediment samples from the environment. Gravimetric determination in the analysis of environmental samples. The result of the analysis and data processing. Errors in analysis. Simple methods of sample preparation.<br><br><i>Practical instruction</i><br>Practical course follows the theoretical one. |                     |                                    |                   |        |
| <b>Weekly teaching load</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                     |                                    |                   | Other: |
| Lectures:<br>3(45)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Exercises:<br>3(45) | Other forms of<br>teaching: 1 (15) | Student research: |        |