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| **Study program:** Doctoral academic studies **-** Chemistry | | |
| **Course title:** Instrumental Analysis 1 (H326C) | | |
| **Name of lecturer/lecturers:** Jelena N. Nikolić | | |
| **Type of course:** elective | | |
| **Number of ECTS allocated:** 10 | | |
| **Course objectives**  Enabling the student to understand the principle and characteristics of modern analytical instruments. Enabling the student to select, optimize and validate the analytical method. The student's readiness to apply key quality control parameters of the analytical process. | | |
| **Course outcomes**  After successfully completing the course, the student will be able to:  - master the necessary knowledge that will enable him to propose a modern and adequate approach to solving complex analytical problems,  - apply the acquired knowledge in the optimization and validation of new analytical methods and be able to independently perform quality control in the analytical laboratory. | | |
| **SYLLABUS**  *Lectures*  Legal regulations of quality control (standardization, accreditation, certification and calibration). Method selection and evaluation. Area of ​​application of analytical methods. Directions of development of chemical and instrumental methods of analysis. Development and validation of analytical methods - validation parameters. Reference materials. Quality assurance of the analytical method - intra and interlaboratory control. Results processing. Statistical tests. Display of results - tabular and graphical. Optimization and validation of selected instrumental methods of analysis. | | |
| **References**  1. W. Funk, V. Dammann, G. Donnevert, Quality assurance in analytical chemistry: applications in environmental, food, and materials analysis, biotechnology, and medical engineering, Wiley-VCH, cop. 2007.  2. M. Kaštelan-Macan, Kemijska analiza u sustavu kvalitete, Školska knjiga, Zagreb, 2003.  3. F. Rouessac, A. Rouessac, Chemical analysis, Modern instrumentation. Methods and techniques, Wiley, 2000. | | |
| **Active teaching classes** | **Lectures:** 105 | **Laboratory work:** / |
| **Teaching mode:** lectures, consultations, colloquiums, seminars | | |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** | | |
| activity during lectures - 10 points; colloquiums - 40 points; seminar - 20 points; oral exam - 30 points | | |