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| **Study program:** Doctoral academic studies **-** Chemistry |
| **Course title:** Selected Chapters of Separation Methods in Chemistry (H328C) |
| **Name of lecturer/lecturers:** Vesna P. Stankov Jovanović |
| **Type of course:** elective |
| **Number of ECTS allocated:** 10 |
| **Course objectives** Acquisition of detailed knowledge in the field of chemical and physical methods of separation. Getting proficiency in theoretical principles of modern separation methods. Application of theoretical knowledge in choosing the appropriate method of separation in relation to the analysis followed. |
| **Course outcomes** Upon successful completion of this course, the student will be able to: - define and describe procedures for the separation of substances depending on the type of analysis to be followed,- explain and differentiate the advantages and disadvantages of individual separation methods,- analyze and argue the application of certain separation methods in specific cases,- make the correct choice of method for separating the analyzed substance,- practically apply separation techniques in scientific research work. |
| **SYLLABUS***Lectures*A general theory of separation. Removal of interfering substances from the analyzed substance. Distillation (single stage, complex). Evaporation. Sublimation. Recrystallization. Filtration. Ultrafiltration. Centrifugation. Chemical separation methods. Extraction methods. Extraction equilibrium theory. Types of extraction systems. Application of modern extraction methods in analytical chemistry. Chromatographic separation methods. Classification of chromatographic methods. Gas/liquid chromatography. Ion exchange chromatography. Gel chromatography. Affinity chromatography. Application of chromatographic methods in analytical chemistry. Membrane separations. Separation according to particle size. Instrument application in separation methods. |
| **References**1. D. A. Skoog, D. M. West, F. G. Holler, Fundamentals of Analytical Chemistry, Saunders College Publishing, New York, 1996. (prevod Školska knjiga Zagreb, 1999.) 2. D. Harvey, Modern Analytical Chemistry, McGraw Hill Higher Education, 2000. 3. M. Cook et al, Encyclopedia of Separation Science, Academic Press, Edinburgh, 2000. 4. J. M. Miller, Separation methods in chemical analysis, John Wiley & Sons, New York, 1975. |
| **Active teaching classes** | **Lectures:** 105 | **Laboratory work:** / |
| **Teaching mode:** lectures, consultations, colloquium, seminar |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** |
| activity during the lecture - 5 points; colloquium - 20 points; seminar - 40 points; oral exam - 35 points |