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| **Study program** Chemistry |
| **Course title** Analytical chemistry 3 |
| **Name of lecturer/lecturers** Vesna P. Stankov Jovanović |
| **Type of course** Obligatory |
| **Number of ECTS allocated** 7 |
| **Course objectives**Gaining of theoretical and practical knowledge about the most important groups of volumetric methods of analysis. Practicing for the independent performance of volumetric analyses, learning about the correct choice of analysis method, presentation and interpretation of the obtained results of volumetric analysis. |
| **Course outcomes**After successfully completing the course, the student is able to:-demonstrate acquired knowledge and understanding basic facts, concepts and principles of quantitative analytical chemistry when solving basic known or unknown analytical problems - applies the principles of good laboratory practice in solving laboratory work-measures confidently, precisely and accurately when performing assigned analyses-accurately and reliably calculates and processes the results of measurements- formulates conclusions based on the collection and interpretation of the results of volumetric analyzes and writesreports on the performed analyses- states the application of volumetric methods in different fields |
| **SYLLABUS***Lectures*Introduction to volumetry. Standard solutions. Titration curves. General theory of indicators. Acid-base titrations. Acid-base indicators. Titration curves and indicator error. Practical acid-base determinations. Precipitation titrations. Titration curves of precipitation titrations. Determination end points of precipitation titrations. Practical determinations based on precipitation methods. Redox titrations. Redox titration curves. Redox indicators and indicators error. Practical redox determinations. Other redox determinations. Complexometry. Titration curves in complexometry. Techniques of complexometric titrations. Practical complexometric determination.*Laboratory work*Determination of hydrochloric acid. Determination of acetic acid. Determination of chloride Mohr’s method.Permanganometric determination of Fe(II). Permanganometric determination of Mn(II) using Volhard’s method.Iodometric determination of Cu(II). Bromatometric determination of As(III)/Sb(III). Complexometric determination of Ni(II). Complexometric determination of Ca(II) and Mg(II) in a mixture. Exam analysis. |
| **References**J. Savić, M. Savić, Osnovi analitičke hemije, Svijetlost, Sarajevo, 1987.T. Pecev, J. Perović, Titrimetrijske metode analize, Prosveta, Niš, 1997.T. Pecev, J. Perović, M. Miljković, i dr., Kvantitativna anlitička hemija-zbirka zadataka, Univerzitet u Nišu, Prirodno-matematički fakultet, Niš, 2002. |
| **Active teaching classes** | **Lectures** 30 | **Laboratory work** 75 |
| **Teaching mode** lectures, laboratory work |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** |
| **Pre exam duties** | **Points** | **Final exam**  | **Points** |
| Activity during lectures | 5 | Written examination | 15 |
| Practical teaching | 40 | Oral examination | 20 |
| Teaching colloquia | 20 |  |  |