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| **Study program** Master Studies Chemistry | | | | |
| **Course title** Geochemistry (H210C) | | | | |
| **Name of lecturer/lecturers** Nikola Nikolić | | | | |
| **Type of course** Elective | | | | |
| **Number of ECTS allocated** 6 | | | | |
| **Course objectives**  The aim of the course is to acquaint students with the basic concepts of geochemistry. Applying acquired knowledge to solving various problems during geochemical research. Getting to know the possibilities of applying geochemistry in environmental protection. | | | | |
| **Course outcomes**  Having finished this course successfully, a student will be able to:  • apply the acquired knowledge to solve basic problems encountered during geochemical research  • apply the adopted principles and knowledge in order to solve potential problems related to environmental  protection, which are related to geochemical behavior and migration of elements in the environment. | | | | |
| **SYLLABUS**  *Lectures*  Introduction. History and definition of geochemistry. Geochemical crystal chemistry. Thermodynamics in geochemistry. Geophysical aspect of the structure and composition of the Earth and the Earth's crust. Geochemistry of igneous rocks. Geochemistry of metamorphic rocks. Geochemistry of sedimentary rocks. Complete geochemical analysis of limestone, igneous, silicate rocks. The origin of organic matter in sediments. Diagenesis: formation of humic acids and humin, formation of kerogen. Catagenesis: formation of bitumen, migration, accumulation, metagenesis. Kerogen: definition, isolation, determination of structure, maturation. Oil. Gas. Coal: origin, composition, classification, types according to the degree of classification. Bituminous shale.  *Laboratory work*  Theoretical basis of preparation of geological samples for analysis. Documenting the results and analysis of the data obtained from the examination of limestone rocks. Documenting the results and analysis of the data obtained from the examination of igneous rocks. Documenting the results and analysis of the data obtained from the examination of silicate rocks. Documenting the results and analysis of data obtained from testing bituminous shale. Documentation of results and analysis of data obtained from oil and coal testing. Geochemical analysis of limestone rocks. Geochemical analysis of igneous rocks. Geochemical analysis of silicate rocks. Geochemical analysis of bituminous shales. Geochemical analysis of oil. Geochemical analysis of coal. | | | | |
| **References**  1. F. Albarède, Geochemistry: an introduction. 2nd ed.. Cambridge (2009).  2. R.J. Schaetzl, Soils : genesis and geomorphology. 4th printing. Cambridge, UK; New York (2010).  3. K.H. Wedepohl, Editorial Board: C.W. Correns, D.M. Shaw, K.K. Turekian, J. Zemann, Handbook of Geochemistry, Springer-Verlag Berlin-Heidelberg-New York (1969). | | | | |
| **Active teaching classes** | **Lectures** 45 | | **Laboratory work** 15 | |
| **Teaching mode**  Method of oral presentation, method of demonstration, method of experimental work, homework. | | | | |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** | | | | |
| **Pre exam duties** | **Points** | **Final exam** | | **Points** |
| Activity during lectures | 5 | Written examination | | - |
| Practical teaching | 15 | Oral examination | | 30 |
| Teaching colloquia | 50 |  | |  |
| Seminar | - |  | |  |