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| **Study program:** Chemistry (PhD) | | |
| **Course title:** Remediation technologies (H336C) | | |
| **Name of lecturer/lecturers:** Aleksandar Lj. Bojić | | |
| **Type of course:** elective | | |
| **Number of ECTS allocated:** 10 | | |
| **Course objectives**  Providing a knowledge about the current area of modern society - the remediation of life environment. Introducing the student to physical, chemical, and biological remediation techniques and technologies with the aim of training for remediation of contaminated areas. | | |
| **Course outcomes**  After completing the course, the student will be able to independently apply the acquired knowledge for assessing the type and degree of pollution of a certain sphere of the environment, assessing the risk of pollution, to propose suitable remediation techniques or technologies and the way of their application, yes manages physical, chemical, or biological processes in order to protect from further contamination and remediation of the existing condition. | | |
| **SYLLABUS**  *Lectures*  The concept of environmental remediation. Remediation in-situ and ex-situ. Principles of water remediation, sediment, soil, air and waste. Physical remediation technologies. Chemicalremediation technologies. Bioremediation technologies. Phytoremediation technologies. Ecoremediation. Thermal remediation technologies. Kinetics of remediation processes. Analysis of the type and distribution of pollution. Assessment of the degree of pollution and risk. The choice remediation technologies according to the type of sphere and pollution. Chemical oxidation in-situ (ISCO). Solidification/stabilization in the treatment of polluted soil and water. Bioremediation soil and water contaminated with organic pollutants. Land remediation and groundwater contaminated with heavy metals | | |
| **References**  1. Kостић A., Инжењеринг заштите животне средине, Хемијски факултет, Београд, 2007.  2. Lehr J.H., Handbook of Complex Environmental Remediation Problems, McGraw Hill Professional, 2002.  3. Дорчић И., Основе чишћења уљних загађења. СКТХ/Кемија у индустрији, Загреб, 1987.  4. Wang L.K., Tay J-H., Tay S.T-L., Hung Y-T., Environmental Bioengineering, Humana Press, New York, 2010.  5. Darnault C.J.G., Overexploitation and Contamination of Shared Groundwater Resources, Springer Science, New York, 2008.  6. Evanko R.C., Dzombak A.D., Remediation of Metals-Contaminated Soils and Groundwater, Ground-Water Remediation Technologies Analysis Center, Pittsburgh, 1997. | | |
| **Active teaching classes** | **Lectures 105** | **Laboratory work** |
| **Teaching mode** | | |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** | | |
| Seminar work: 50 points; Oral exam: 50 points | | |