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| **Study program:** Chemistry (PhD) |
| **Course title: Selected Chapters of Applied Inorganic Chemistry (H320C)** |
| **Name of lecturer/lecturers Maja N. Nikolić** |
| **Type of course: elective** |
| **Number of ECTS allocated 10** |
| **Course objectives****Familiarity with inorganic materials used in the pharmaceutical industry, industry of artificial fertilizers, construction materials, steel and non-ferrous metals, ceramics, pigments, inorganic fibers, nuclear fuel and their properties, importance, and application** |
| **Course outcomes****After mastering the course program, the student will be able to:****• connects the physical and chemical properties of inorganic materials with the possibilities of application in industry,****• recognize the economic importance, preparation methods and environmental impact of the most important inorganics compounds produced on an industrial scale,****• performs analysis independently (theoretical-mathematical or software approach), and establishes****optimized parameters of the process of synthesis and application of inorganic materials** |
| **SYLLABUS***Lectures**Inorganic acids and their derivatives (production of sulfuric acid and impact on the environment, production of phosphoric and hydrochloric acid). Inorganic bases and their derivatives (ammonia production, caustic soda, lime...). Industrial processes of metal extraction from ores. Inorganic compounds-importance for agriculture (fertilizers NPK, pesticides, insecticides...). Silicate raw materials and derived materials (zeolites, cement, glass). Explosives. Semiconductors and electronic components. Fuel cells.* |
| **References**A. Cotton, G. Wilkinson, Advanced Inorganic Chemistry. John Wiley & Sons, 1976. K. H. Büchel, H.-H. Moretto, P. Woditsch, Industrial Inorganic Chemistry. Wiley-VCH Verlag GmbH, Weinheim, 2000. |
| **Active teaching classes** | **Lectures 105** | **Laboratory work** |
| **Teaching mode: Interactive lectures, homework, seminar work, panel discussions** |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** |
| activity during the lecture - 20 points; practical teaching - 20 points; seminar work – 20 points; written exam - 40 points; |