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| <b>Course title: Selected chapters of chemistry didactics</b>   |            |                          |               |
| <b>Lecturer: Mirjana Segedinac</b>  |            |                          |               |
| <b>Status:</b> elective   |            |                          |               |
| <b>ECTS:</b> 15   |            |                          |               |
| <b>Requirements:</b> none   |            |                          |               |
| <b>Learning objectives</b><br>Development of the structure of knowledge about chemical experiments as a primary source of knowledge in specific problem situations.   |            |                          |               |
| <b>Learning outcomes</b><br>Students will develop the ability to apply chemical experiments in specific chemical disciplines and use specific chemical experiment techniques in teaching.   |            |                          |               |
| <b>Syllabus</b><br><i>Theoretical instruction:</i> The concept of education in the field of natural sciences. Profound education in chemistry. Corpuscular concept. The concept of structures and properties. Donor-acceptor concept. The concept of energy. The concept of equilibrium. The chemical knowledge system. The chemistry knowledge structure. Invariant core in the chemistry knowledge structure. The variable part of the structure of chemistry knowledge and the factors which determine it. Functional chemistry curricula. Standardization of knowledge in chemistry. Sources of cognition in chemistry. Problem based learning in chemistry. Designing a problem situation in chemical education - cognitive conflict. Targeted and planned problem solving in chemistry. Chemistry knowledge in solving the complex problem situations. Chemistry communication. Strategies of acquiring and applying knowledge in chemistry teaching: objectification, identification, classification and systematization, accumulation, structure, anticipation, decision-making and argumentation optimization. Transfer of knowledge in chemistry teaching. Personality of chemistry teacher. Chemistry teacher education based on the teaching competences. Academic and professional competence. Pedagogical and psychological competences. Didactic and methodological competences. Evaluation and self-evaluation of chemistry teachers. Permanent education, further training and professional development of chemistry teachers. Educational potential of chemistry teaching. Education in environmental protection and sustainable development in terms of chemistry. |            |                          |               |
| <b>Suggested literature:</b>  |            |                          |               |
| 1. <i>Innovative Methods of Teaching and Learning Chemistry in Higher Education</i> , in I. Eilks, B. Buyers (eds.), The Royal Society of Chemistry, London, 2010.  |            |                          |               |
| 2. Ray, B., <i>Modern Methods of Teaching Chemistry</i> , S.B. Nangia, New Delphi, 2008.  |            |                          |               |
| <b>Weekly teaching load</b>   |            |                          | <b>Other:</b> |
| Lectures: 5   | Exercises: | Other forms of teaching: |               |
| <b>Teaching methodology</b><br>Interactive methods in the lectures and exercises, individual work of students in the framework of practical training, individual consultations.   |            |                          |               |
| <b>Grading (maximal number of points 100)</b>   |            |                          |               |
| Practical teaching 20 points, Seminar 20 points, Oral exam 60 points  |            |                          |               |