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| **Study program** Applied chemistry with the management basics | | | | |
| **Course title** Advanced organic chemistry (H230C) | | | | |
| **Name of lecturer/lecturers** Goran M. Petrovic | | | | |
| **Type of course** Obligatory | | | | |
| **Number of ECTS allocated** 5 | | | | |
| **Course objectives**  - Acquiring knowledge about different types of chirality.  - Recognition of stereogenic elements and determination of their configuration.  - Acquiring knowledge about the basic concepts of conformational analysis.  - Acquiring the basic concepts of organic synthesis - principles, concepts, retroanalysis. | | | | |
| **Course outcomes**  After successful completion of this course, the student is able to:  - recognize compounds that possess elements of chirality,  - demonstrate acquired knowledge and understanding of basic facts, concepts, principles and theories by determining configurations of concrete examples of chiral molecules,  - apply acquired knowledge in the analysis of conformations of acyclic and cyclic organic compounds,  - accurately assess the impact of structure on the reactivity of organic compounds,  - formulate conclusions based on acquired knowledge about the possibilities of synthesis of an organic molecule,  - apply the concept of retrosynthetic analysis in defining different methods and approaches to the synthesis of some organic molecule. | | | | |
| **SYLLABUS**  *Lectures*  Basics of stereochemistry. Configurational analysis of different types of chiral compounds. Fundamentals of dynamic stereochemistry. Conformational analysis of acyclic compounds. Conformational analysis of cyclic compounds. Quantitative correlation of structure and reactivity of organic compounds. Basics of organic synthesis - concept of synthesis. Nucleophilic synthons. Electrophilic synthons. Interconversion of functional groups - oxidation, reduction, protective groups. Pericyclic reactions. Retrosynthetic analysis. Seminar.  *Laboratory work*  *Theoretical exercises* | | | | |
| **References**  1. M. Mihailović, Osnovi teorijske organske hemije i stereohemije, Građevinska knjiga, Beograd, 1970.  2. G. Stojanović, Organska stereohemija, Prirodno-matematički fakultet, Niš, 2007.  3. Đ. Glišin, G. Petrović, B. Arsić, Organska sinteza: principi, koncepti, retroanaliza, sintoni, Prirodno matematički fakultet, Niš, 2013.  4. K.P.C. Vollhardt, N.E. Schore, Organska hemija, Ed. Haydigraf, prevod B. Šolaja, Beograd, 1996. | | | | |
| **Active teaching classes** | **Lectures** 45 | | **Laboratory work** 15 | |
| **Teaching mode**  Lectures, theoretical exercises, individual and group consultations, seminar, teaching colloquia. | | | | |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** | | | | |
| **Pre exam duties** | **Points** | **Final exam** | | **Points** |
| Activity during lectures | 5 | Written examination | | 35 |
| Practical teaching | 10 | Oral examination | |  |
| Teaching colloquia | 40 |  | |  |
| Seminar | 10 |  | |  |