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| **Study program** Chemistry | | | | |
| **Course title** Software application in chemistry | | | | |
| **Name of lecturer/lecturers** Tatjana D. Anđelković | | | | |
| **Type of course** Elective | | | | |
| **Number of ECTS allocated** 4 | | | | |
| **Course objectives**  Usage of various computer software for seminar writing, professional and final papers in chemistry (MS Word for Windows and Microsoft PowerPoint), graphics drawing (Origin), experimental data processing (Microsoft Excel), structural formulas drawing (ChemDraw and ChemSketch), remote access to instruments (TeamViewer), remote work in groups (Microsoft Teams) and chemical literature searches (KOBSON, Science Direct, SciFinder). | | | | |
| **Course outcomes**  Upon successful completion of this course, the student can: use software for text and graph processing, simple processing of numerical and statistical data, search chemical databases and literature on the Internet, use software for remote work on chemical instruments and use platform for remote collaboration and communication. | | | | |
| **SYLLABUS**  *Lectures*  Programs within the Office 365 package. Word processing program (MS Word). A program for presentation creation (MS PowerPoint). Program for calculations (MS Excel). Program for graphics display and analysis of data (Origin or SciDAVis). A program for drawing molecule structures (ChemSketch and ChemDraw). Searching the chemical literature using the websites: KOBSON, Science Direct and SciFinder. Remote access to chemical instruments (TeamViewer). Communication platform, video meetings and file storage (MS Teams). Data banks in chemistry.  *Practical work*  Practical introduction to the basics of the Office 365 package. Text input program - MS Word. Entering shorter text with special chemical symbols, chemical reactions. Training students to write seminars on the computer. Creating presentations - Microsoft PowerPoint. Calculations - MS Excel. Working with tables, using functions, solving tasks using tables. Processing of experimental data - Origin or SciDAVis. Simpler calculations and fitting. Drawing of various types of graphics that are most often used in chemistry. Drawing molecules - ChemSketch and ChemDraw.  Drawing of chemical reactions, showing the three-dimensional structure of molecules, optimization on geometry of molecules, conformational analysis of small molecules. Chemical literature search by computer, KOBSON, Science Direct, SciFinder. Remote access to chemical instruments (TeamViewer). Communication, video meeting and file storage (MS Teams). Using data banks in chemistry. | | | | |
| **References**  Office platform help and tutorial (https://support.office.com/sr-latn-rs)  Origin platform help and tutorial (https://www.originlab.com/doc/Tutorials) | | | | |
| **Active teaching classes** | **Lectures** 30 | | **Laboratory work** 15 | |
| **Teaching mode** Lectures and project work | | | | |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** | | | | |
| **Pre exam duties** | **Points** | **Final exam** | | **Points** |
| Activity during lectures | 4 | Practical examination | | 60 |
| Practical teaching | 12 | Oral examination | |  |
| Homework | 24 |  | |  |
| Seminar |  |  | |  |