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| **UNIVERSITY OF NIŠ** | | | | | | |
| **Course Unit Descriptor** | | **Faculty** | | | Faculty of Sciences and Mathematics | |
| **GENERAL INFORMATION** | | | | | | |
| Study program | | | | **Chemistry** | | |
| Study Module (if applicable) | | | | - | | |
| Course title | | | | Physical Chemistry 1 | | |
| Level of study | | | | ✓Bachelor ☐ Master’s ☐ Doctoral | | |
| Type of course | | | | ✓ Obligatory☐ Elective | | |
| Semester | | | | ✓ Autumn ☐Spring | | |
| Year of study | | | | II | | |
| Number of ECTS allocated | | | | 5 | | |
| Name of lecturer/lecturers | | | | Snežana Tošić | | |
| Teaching mode | | | | ✓Lectures ☐Group tutorials ☐ Individual tutorials  ✓Laboratory work ☐ Project work ☐ Seminar  ☐Distance learning ☐ Blended learning ☐ Other | | |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** | | | | | | |
| *Acquiring knowledge of basic physical and chemical concepts and laws in the field of gases and thermodynamics with special focus on chemical thermodynamics.*  *Application of acquired knowledge for consideration of equilibrium in any system.* | | | | | | |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** | | | | | | |
| **The perfect gas. The states of gases. The gas laws. The kinetic model of gases. Mixtures of gases. Real gases. Molecular interactions. The compression factor. The van der Waals equation. Virial coefficients. Condensation. Critical constants. Reduced variables.**  **Work, heat and energy. The Zeroth and First Law of thermodynamics. The internal energy. Enthalpy. Heat capacity. Adiabatic changes. Reversible and irreversible changes. Thermochemistry. The Second Law of thermodynamics. Spontaneous process. Carnot cycle. Entropy. The Third Law of thermodynamics. Gibbs and Helmholtz energy. Fundamental equation. Maxwell relations. Gibbs-Helmholtz equation.** | | | | | | |
| **LANGUAGE OF INSTRUCTION** | | | | | | |
| ✓Serbian (complete course) ☐ English (complete course) ☐ Other \_\_\_\_\_\_\_\_\_\_\_\_\_ (complete course)  ☐Serbian with English mentoring ☐Serbian with other mentoring \_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | | | |
| **ASSESSMENT METHODS AND CRITERIA** | | | | | | |
| **Pre exam duties** | **Points** | | **Final exam** | | | **points** |
| **Activity during lectures** | **5** | | **Written examination** | | | **10** |
| **Practical teaching** | **25** | | **Oral examination** | | | **20** |
| **Teaching colloquia** | **40** | | **OVERALL SUM** | | | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** | | | | | | |