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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty of Technology** |  |
| **GENERAL INFORMATION** |
| Study program  | Undergraduate studies: Food Technology and Biotechnology and Chemical Technologies |
| Study Module (if applicable) | Food Technology; Biotechnology and Ecological Engineering |
| Course title | Chemical engineering calculations |
| Level of study | [x] Bachelor [ ]  Master’s [ ]  Doctoral |
| Type of course | [x]  Obligatory [x]  Elective |
| Semester  | [x]  Autumn [ ] Spring |
| Year of study  | Second |
| Number of ECTS allocated | 5 |
| Name of lecturer/lecturers | Prof. Olivera Stamenković |
| Teaching mode |  [x] Lectures [x] Group tutorials [x]  Individual tutorials [ ] Laboratory work [ ]  Project work [ ]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| Students gain the necessary knowledge of chemical engineering calculations. The aim of the course is to present to students the methods of dimension and theory of similarity, the approximately calculation of the physical and chemical properties of the fluids, balancing simple and complex technological processes. Students are able to independently calculate physical and chemical properties of the fluids, set the mass and energy balance. Students acquire the knowledge which enables them to work in real conditions. By comprehensive understanding of the problems, students are able to use previously acquired knowledge to solve them. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Units and dimensions systems. Theory of similarity. Dimensional analysis: Rayleigh method. Buckingham Pi theorem. Linear interpolation and extrapolation. Linear approximation (The method of least squares). Linearization of the functions. Numerical integration methods. Approximately calculation of physical and chemical characteristics of fluids (the viscosity, the vapour pressure, latent heat of evaporation, diffusion coefficient). Mass and energy balance in stationary and non-stationary conditions. The combined mass and energy balances. |
| **LANGUAGE OF INSTRUCTION** |
| [x] 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** | **60** |
| **Practical teaching** | **5** | **Oral examination** | **30** |
| **Teaching colloquia** | **60** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |