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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | Faculty of Technology, Leskovac |
| **GENERAL INFORMATION** |
| Study program  | **CHEMICAL TECHNOLOGIES**  |
| Study Module (if applicable) | ECOLOGICAL ENGINEERING |
| Course title | Energetics in processing industry |
| Level of study | [x] Bachelor [ ]  Master’s [ ]  Doctoral |
| Type of course | [x]  Obligatory [ ]  Elective |
| Semester  |  [x]  Autumn [ ] Spring |
| Year of study  | IV |
| Number of ECTS allocated | 4 |
| Name of lecturer/lecturers | Predrag Rašković |
| Teaching mode |  [x] Lectures [ ] Group tutorials [ ]  Individual tutorials [ ] Laboratory work [ ]  Project work [ ]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| This course provides an overview of the energetics, energy systems and most important energy transformations in processing industry. Topics include steam generators, refrigeration and cryogenic plants. Second part of the course introduce the concept of Process Integration, Heat Exchanger Network Synthesis and Pinch analysis. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Topics covered: Energetic, energy resources, energy usage and transformations in processing industry, Steam generators (Classification and description of main parts, Fuels and combustion, Material and heat balance of boilers, Heat transfer calculations), Refrigeration plants (Fundamental principle of refrigeration, Types of Refrigeration systems, Vapor compression cycles, Heat pumps), Concept of Process Integration (Heat Integration, Heat Exchanger Network Synthesis), Pinch Analysis ( Grapho-Analytic tools, Phases of Pinch design, conventional HENS task) |
| **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** | **10** | **Written examination** |  |
| **Practical teaching** |  | **Oral examination** | **50** |
| **Teaching colloquia** |  |  |  |
| **Seminar papers** | **40** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |