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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | Faculty of Technology, Leskovac |
| **GENERAL INFORMATION** |
| Study program  | **TECHNOLOGICAL ENGINEERING** |
| Study Module (if applicable) |  |
| Course title | Energy integration |
| Level of study | [ ] Bachelor [ ]  Master’s [x]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  |  [x]  Autumn [ ] Spring |
| Year of study  | II |
| Number of ECTS allocated | 8 |
| 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)** |
| The course provides the methodology that is commonly used for energy efficient chemical process design. In particular, the course introduce the System oriented Process-Integration tools (Pinch analysis, Exergy analysis, Exergoeconomic analysis and optimization) for the synthesis, analyses and optimization of complex processing plants. The course also reinforces equipment design of common process equipment. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Topics covered: Fundamental concept of Process System Enegineering (Process Integration, Heat Integration, Mass Integration). Introduction to Pinch Analysis (Grapho-Analytic tools, Phases of Pinch design, conventional HENS task), Advance use of Pinch Analisys (Integration of heat engines and heat pums, evaporators, dryers, distillation columns, Total site integration), Mathematical metods for heat integration, Heat Integration of batch processes, Mass Integration, Exergy analysis, Exergoeconomic analysis and optimization. |
| **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** |