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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  |  |
| **GENERAL INFORMATION** |
| Study program  | CHEMICAL TECHNOLOGIES |
| Study Module (if applicable) | PHARMACEUTICAL AND COSMETIC ENGINEERING, ORGANIC CHEMICAL TECHNOLOGY AND POLYMER ENGINEERING, ECOLOGICAL ENGINEERING |
| Course title | Basics of chemical reaction engineering |
| Level of study | [x] Bachelor [ ]  Master’s [ ]  Doctoral |
| Type of course | [x]  Obligatory [ ]  Elective |
| Semester  |  [ ]  Autumn [x] Spring |
| Year of study  | 3 |
| Number of ECTS allocated | 6 |
| Name of lecturer/lecturers | Ivana Banković-Ilić |
| 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 selection and design of the basic types of ideal chemical reactors in the case of single isothermal reactions under steady-state conditions and homogeneous systems. The students are qualifying for individual work in batch and continuous reactor design on laboratory and industrial scale and engineering approach for process optimization. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| The mole balances of different types of chemical reactors (batch, mixed flow and plug flow reactor). The basic design equations for isothermal conditions with graphical analysis in the cases of constant and variable volume of reaction mixture. Definitions of conversion, space-time and production rate. A stoichiometric table for both batch and flow systems.  Damkhӧhler number. Multiple reactor systems: series and/or parallel connection. Optimum size of mixed flow reactors in series. Plug flow reactor with packed bed and pressure drop. Recycle reactor. Autocatalytic reactions. |
| **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** | **40** |
| **Practical teaching** |  | **Oral examination** | **50** |
| **Teaching colloquia** |  | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |