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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | Faculty of Science and Mathematics |
| **GENERAL INFORMATION** |
| Study program  | **Applied chemistry**  |
| Study Module (if applicable) | Applied chemistry  |
| Course title | H-267 Chemistry of textile materials and industrial dyes  |
| Level of study | ☐Bachelor X Master’s ☐ Doctoral |
| Type of course | ☐ Obligatory X Elective |
| Semester  |  ☐ Autumn XSpring |
| Year of study  | Second year of master’s study  |
| Number of ECTS allocated | 4 |
| Name of lecturer/lecturers | Prof. dr Milena N. Miljkovic |
| Teaching mode |  X Lectures ☐Group tutorials ☐ Individual tutorials XLaboratory work ☐ Project work X Seminar ☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| *Stems from the continuous growth of production of natural and artificial textile fibers, i.e. textile materials and finding new textile materials and fibers, which are results of the newest knowledge in chemistry. Introduction of chemical structure and characteristics of textile materials, industrial dyes, explanation of mechanism, fundamental organic reactions which exactly lead to synthesis of all known organic industrial dyes and their applications in dyeing of various substrates. Acquiring knowledge on chemical structure, properties and technological processes for the production of applicable natural and artificial textile fibers-materials. Introduction to the structure of industrial dyes, thermodynamics and kinetic legality which numerically define key parameters in dyeing of different materials.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| *Lectures*1. **Structure and classification of textile materials**
2. **Production of cellulose fibers**
3. **Production of protein fibers**
4. **Production of polyacrylonitrile fibers (PAN)**
5. **Production of polyamide fibers (PA)**
6. **Production of polyester fibers (PES)**
7. **Production of acetate and triacetate fibers**
8. **Structure of dyes and classification; Basic theories of dyeing**
9. **Chemical characteristics of dyeing with cellulose fibers**
10. **Substantive, reductive, reactive, sulfuric dyes which are synthetized on the fiber**
11. **Theoretical foundations of wool dyeing using acidic, metal complex, chromic and reactive dyes**
12. **Chemical characteristics of synthetic fibers dyeing**
13. **Theoretical foundations of polyacrylonitrile fibers dyeing**
14. **Theoretical foundations of polyamide fibers dyeing**
15. **Theoretical foundations of polyester fibers dyeing**

***Practical teaching: Exercises, Other forms of instruction, Study work**** **Prior chemical processing of cellulose fibers and mixtures**
* **Prior chemical processing of protein fibers and mixtures**
* **Practical dyeing of cellulose fibers with direct dyes**
* **Practical dyeing of cellulose fibers with reactive dyes**
* **Practical dyeing of wool with acidic dyes**
* **Practical dyeing of wool with reactive dyes**
* **Practical dyeing of wool with metal complex dyes**
* **Practical dyeing of polyacrylonitrile fibers with dispersive dyes**
* **Practical dyeing of polyacrylonitrile fibers with cationic dyes**
* **Practical dyeing of polyamide fibers with dispersive dyes**
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| **LANGUAGE OF INSTRUCTION** |
| XSerbian (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** | **12** | **Written examination** | **/** |
| **Practical teaching** | **24** | **Oral examination** | **40** |
| **Teaching colloquia** | **24** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |