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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) | Biotechnology and Ecological Engineering |
| Course title | Alternative energy sources |
| Level of study | [x] Bachelor [ ]  Master’s [ ]  Doctoral |
| Type of course | [x]  Obligatory [ ]  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 [ ] Group tutorials [x]  Individual tutorials [x] Laboratory work [ ]  Project work [x]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| Students gain the necessary knowledge of alternative energy sources. The aim of the course is to present to students the principles of the development of alternative sources of energy, methods of application, advantages and disadvantages, and recognize the possibilities for substitution of conventional fuels with new alternative fuels. 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)** |
| The concept of alternative energy sources. The impact on the environment. Solar energy and its transformation into thermal energy. Solar collectors. Heat pumps. Heat balance. The energy of water and its transformation into electricity. Hydropower turbines: characteristics and classification. Wind Energy. The principles of the conversion of wind energy into electricity. Power of the wind. Tidal power. The tides formation. Tidal stream power. Tidal range power. Tidal power stations. Renewable energy sources. Environmental aspects, advantages and disadvantages of alternative energy sources. |
| **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** | **30** |
| **Practical teaching** | **5** | **Oral examination** | **30** |
| **Seminar work** | **30** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |