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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty** | Faculty of Electronic Engineering Nis |
| **GENERAL INFORMATION** |
| Study program  | Electrical Engineering and Computing |
| Study Module (if applicable) | Electronic Devices and Microsystems |
| Course title | Renewable Energy |
| Level of study | ☒Bachelor ☐ Master’s ☐ Doctoral |
| Type of course | ☐ Obligatory☒ Elective |
| Semester  | ☒ Autumn ☐Spring |
| Year of study  | 3 |
| Number of ECTS allocated | 5 |
| Name of lecturer/lecturers | Pantić S. Dragan, Mančić D. Dragan |
| Teaching mode | ☒Lectures ☐Group tutorials ☐ Individual tutorials☐Laboratory work ☒ Project work ☒ Seminar☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| The adoption of basic knowledge and understanding of the importance of renewable energy. Introduction with the types of renewable energy technologies and other types of conversion of energy into electricity. Studying the characteristics of components and systems, and software tools used to design the system. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Introduction - energy and environment, global supply and use of energy, concept and types of renewable energy sources. Conditions in the global market and examples of implemented plants in Serbia. Wind energy: resources, wind power, wind generators, wind farm. Hydropower: resources, utilization of water power, an assessment of available energy, types of turbines and systems, small hydro (types and structures). Geothermal energy: types of geothermal resources (water, hot rocks, earth), resources, technology and systems of exploitation. Biomass: features, technologies and systems for biomass, dedicated biomass production for energy, the biochemical processes of production (ethanol, biodiesel and biogas). Nuclear Power: The process of obtaining nuclear power, nuclear fuel. New technologies: fuel cells, compressed hydrogen. Energy Storage: hydropower reservoirs, electrochemical energy storage (batteries), the process of electrolysis, stored energy of compressed hydrogen. Solar energy. Solar thermal and photovoltaic energy. Types of solar cells and their basic electrical characteristics. Modeling and simulation of manufacturing processes and the electrical properties of solar cells. Types and components of solar photovoltaic systems |
| **LANGUAGE OF INSTRUCTION** |
| ☒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** | **25** |
| **Practical teaching** | **30** | **Oral examination** | **25** |
| **Teaching colloquia** | **15** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |