Course Unit Descriptor

Study Programme: Power, Electronic and Telecommunication Engineering (Power Engineering - Distributed Energy Resources)			
Course Unit Title: Distributed Energy Resources_Course Description			
Course Unit Code: EE564			
Name of Lecturer(s): Aleksandar Stanisavljevic, Vladimir Katic			
Type and Level of Studies: Master Academic Degree			
Course Status (compulsory/elective): compulsory			
Semester (winter/summer): winter			
Language of instruction:english			
Mode of course unit delivery (face-to-face/distance learning): face-to-face			
Number of ECTS Allocated:4			
Prerequisites: none			
Course Aims: The goal of this course is to provide students with basic knowledge of the principles and operation of distributed energy resources as a new type of organization of the power system. The goal is to go more thoroughly into the methods of operation, design, construction and techno-economic aspects of their use, especially in light of the available potentials in Vojvodina and Serbia. In addition, the present and the inclusion of these sources into the existing distribution system, as well as all the problems and advantages of this approach.			
Learning Outcomes: Students will be able to calculate, design and apply various forms of renewable energy, and to improve their applicability. They will gain practical experience in working with wind and solar power, as well as know-how on their operation and connection to the existing power system			
Syllabus: Introduction - overview of distributed resources and renewable energy sources. Energy potential and geographic distribution. The situation in Serbia and Vojvodina. The display and conversion opportunities. Converters of solar energy and wind energy into electricity - theories, models and practices. Characteristics and selection of electric generators in wind power plants. Large power plants (wind farms) - mode, surveyor regimes, management, networking with EES. Small hydro power plants - kenstrukcija, manage and connection. Electric energy storage – modern principles, technologies and solutions. Economic and commercial conditions for use of renewable resources for the production and sale of electricity. Connection options for distributed resources into the power system. Advantages and problems in distributed work (unstable networks, island operation, power quality, energy production, etc..).			
Required Reading: Relevant literature in English TBD			
Weekly Contact Hours:4	**Lectures:2**	**Practical work:2**	
Teaching Methods: Theoretical aspects and mathematical models will be presented at the lectures. Problem solving and design methods will be made ??on the auditory exercises, while the practical work and measurement characteristics to be done in the laboratory exercises. Independent student work will be reported in the project.			
Knowledge Assessment (maximum of 100 points):100			
Pre-exam obligations	points	**Final exam**	points

Lecture attendance	5	Written part of the exam	50
Computer exercise attendance	5		
Term paper	20		
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The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			