

Course Unit Descriptor

<b>Study Programme:</b> Precision agriculture			
<b>Course Unit Title:</b> Energy efficiency and renewable energy sources			
<b>Course Unit Code:</b> 19.PRP028			
<b>Name of Lecturer(s):</b> Milan D. Tomić			
<b>Type and Level of Studies:</b> Graduated-Master (2 semesters, 60 ECTS)			
<b>Course Status (compulsory/elective):</b> elective			
<b>Semester (winter/summer):</b> winter			
<b>Language of instruction:</b> Serbian			
<b>Mode of course unit delivery (face-to-face/distance learning):</b> face-to-face			
<b>Number of ECTS Allocated:</b> 5			
<b>Prerequisites:</b> -			
<b>Course Aims:</b> Acquaintance with the parameters that affect the definition of the optimal technical maintenance system for the working correctness of machinery used in agriculture (definition of the optimal technological work process within workshops for agricultural machines, as well as equipment and personnel).			
<b>Learning Outcomes:</b> After completing the course, the student acquires knowledge and skills that enable him to: manage influential parameters important for defining optimal systems for maintaining the operational efficiency of mechanization in agriculture.			
<b>Syllabus:</b> Theoretical teaching Basic terms about energy. Energy and environment. Energy sustainability. Energetic efficiency. Global trends in the use of renewable energy sources (RES). Specifics of certain renewable energy sources (biomass, solar energy, wind energy, water energy. Management in the use of renewable energy sources. Energy conversion. Combustion of biomass. Production of biogas. Production of liquid fuels from biomass - biodiesel and bioethanol. Solar energy receivers. Wind energy conversion into mechanical and electrical energy Geothermal energy Hydro turbines Heat pumps. Practical teaching: Computational exercises in the area of conversions and energy balance. Preparation of a seminar paper. The topic of the seminar work is the increase of energy efficiency for the selected biotechnical system.			
<b>Required Reading:</b> 1. M. Brkić, T. Janić, D. Somer: Procesna tehnika i energetika, Faculty of Agriculture, Novi Sad, 2006, s.322 2. D. Gvozdenac, Branka Gvozdenac Urošević, Z. Morvaj: Energetska efikasnost – industrija i zgradarstvo, Faculty of Technical Sciences, Novi Sad, 2012, s. 214			
<b>Weekly Contact Hours:</b> 4	<b>Lectures:</b> 2	<b>Practical work:</b> 2	
<b>Teaching Methods:</b> The teaching is oral with the help of a Power Point presentation, and the practical part of the teaching is done computationally, through the preparation of seminar papers.			
<b>Knowledge Assessment (maximum of 100 points):</b>			
<b>Pre-exam obligations</b>	points	<b>Final exam</b>	points
Active class participation	4	written exam	41
Practical work	5	oral exam	50
Preliminary exam(s)		.....	
Seminar(s)			
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			