

## Green energy specialization:

<b>Title of the course:</b> The source of renewable energies I. (The application of solar energy)	<b>NEPTUN-code:</b> RKWMF1ABNE	<b>Weekly teaching hours:</b> $l+cw+lb$ 2+1+0	<b>Credit:</b> 3 <b>Exam type:</b> e
<b>Course leader:</b> Lóránt Szabó, Dr.	<b>Position:</b> senior lecturer	<b>Required preliminary knowledge:</b> - RKXEL1EBNE	
<b>Curriculum:</b>			
<p>Basic concepts of energetics. Energy chain, energy transformation, efficiency, energy forms, renewable energy sources. Historical overview of solar energy utilization. Application of solar energy (passive and active methods). The operating principles and types of solar collectors and solar. The efficiency and the payback time of solar collectors and solar cells. Energy analysis of a small domestic solar power plant, depending on the variability of different parameters. The advantages and disadvantages of solar power plants.</p>			
<b>Professional competencies:</b>			
<p>Knowledge of general and specific mathematical, natural and social scientific principles, rules, relations, and procedures as required to pursue activities in the special field of environment protection.</p> <p>Knowledge of the learning, knowledge acquisition, and data collection methods of the special fields of environment protection, their ethical limitations and problem solving techniques.</p> <p>Comprehensive knowledge of the basic features and interrelations of environmental elements and systems, as well as of the environmentally harmful substances affecting them.</p> <p>Knowledge of the concepts and tools of economics and environmental economics, project and environment management in environment protection.</p> <p>Knowledge of the basics of energy management, options for energy production, their advantages and disadvantages, as well as the concept and feasibility options of sustainable development.</p> <p>Able to participate in project and proposal implementation and audit tasks based on their knowledge.</p> <p>Able to participate creatively in engineering work based on their multidisciplinary skills, as well as to adapt to continuously changing circumstances.</p> <p>Able to take part in environment expertise, advisory, and decision preparation work.</p> <p>Monitoring regulatory, technical, technological, and administrative changes related to the special field and enforcing them in their professional work.</p>			
<b>Literature:</b>			
1. Robert Gasch, Jochen Twele: Wind Power Plants: Fundamentals, Design, Construction and Operation, Springer Science & Business Media, 2011. okt. 12. - 548 pp.			
Comment:			