

Title Renewable sources of energy	Code 1010324271010320365
Field Electrical Engineering	Year / Semester 4 / 7
Specialty -	Course core
Hours Lectures: 8 Classes: - Laboratory: 8 Projects / seminars: -	Number of credits 3
	Language polish

Lecturer:

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Status of the course in the study program:

Obligatory subject, Faculty of Electrical Engineering, Field: Electrical Engineering, Extramural first degree studies

Assumptions and objectives of the course:

Attainment of competence of theoretical and practical solving of problems in field of unconventional sources of energy.

Contents of the course (course description):

1. The comparison between conventional and renewable energy sources, world energy consumption, (finite resources, emissions).
2. Renewables: Wind energy, water energy and its conversion, Sun energy, photovoltaic conversion, biogas, biomass, geothermal energy conversion. Fundamental laws and principles. Equations, characteristics, parameters process and optimization of conversion of energy. Technologies, construction and efficiency of converters. Production of energy. Stand - alone and grid - connected installations. Large power plants. Applications (in the world and in Poland), examples. hybrid solutions, performance. costs.
3. Energy storage (battery, flywheel, hydraulic accumulator, superconductor).

Introductory courses and the required pre-knowledge:

Basic knowledge of theoretical and practical problems of method of energy conversion from renewables into electricity.

Courses form and teaching methods:

Lecture and laboratory

Form and terms of complete the course - requirements and assessment methods:

Test

Basic Bibliography:

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Additional Bibliography:

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