UNIVERSITY OF WARMIA AND MAZURY IN OLSZTYN

Faculty of Technical Sciences

Course title: Electrical Power Engineering

ECTS credit allocation (and other scores): 3

Semester: autumn

Level of study: ISCED-6 - first-cycle programmes (EQF-6)

Branch of science: Engineering and technology

Language: English

Number of hours per semester: 15+15

Course coordinator/ Department and e-mail: Maciej Neugebauer, Department of Electrical, Power, Electronic and Control Engineering, mak@uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES: Examination of Electric Power System (EPS) elements. HV, MV and LV power stations. Transmission lines. Thermal power plants. Water and gas power plants. All EPS, power plants and power units, characteristics and structures of EPS - quality of electricity, steady and transient states in EPS: modeling, stability and control, Connecting electric power objects for parallel operation - switches and transformers, thermal and dynamic operation of electric current, electric power stations, electric shock protection).

LECTURES: Power system as part of the power system. Power plants and power units. Electricity transmission lines (cable, overhead). Electricity stations. Properties and structures of EPS - quality of electricity. Steady and transient states in SEE. Mathematical modeling of power system elements. Stability of power systems. Controlling the operation of SEE. Connecting electric power objects for parallel operation - switches and transformers. Thermal and dynamic action of electric current. Electric shock protection.

Learning purpose: Understanding the principles of operation of Electric Power Systems.

On completion of the study programme the graduate will gain:

Knowledge: Knows the requirements related to the design and operation of Electric Power Systems.

Skills: Can solve simple problems in the field of electric power engineering.

Social Competencies: Can identify and resolve dilemmas related to the performance of the entrusted task.

Basic literature: M. Ceraolo, D. Poli, Fundamentals of Electric Power Engineering: From Electromagnetics to Power Systems, IEEE Press, 2014; I.D. Mayergoyz, P. McAvoy, Fundamentals of Electric Power Engineering, World Scientific 2014

Supplementary literature:

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 32

Student's independent work: 20