



Course: *Energy Saving and Energy Effectiveness*

LECTURER: Ievgen Verbytskyi, PhD

LANGUAGES OF EDUCATION: Ukrainian, Russian, English

THE SUBJECT OF EDUCATIONAL COURSE: The course devoted to basic technical improvements for matching of electric power, reactive power compensation and power distortion, described the possibility of using power electronics devices to improve the energy efficiency of electrical grids. The possibility of applying electric DC to reduce losses in electric grid. Advantages and disadvantages after the transition from centralized to distributed systems with intelligent power management. Describe the regulatory framework of modernization of the electricity market in accordance with the law "On the Principles of operation electricity market of Ukraine". Also in the lecture notes are methods of calculating power electronics devices designed to improve the energy efficiency of electrical grids.

THE GOAL OF THE COURSE IS ACHIEVING OF STUDENTS ABILITIES:

- ❖ identify and implementation technologies and equipment for the technical implementation of energy efficiency improvements on basis power electronics.

MAIN TASK OF EDUCATIONAL COURSE

In accordance to demands of educational-professional program, after the finishing of this course must demonstrate such learning outcomes:

Knowledge:

- ✓ matching energy sources;
- ✓ active filter operating;
- ✓ electrical grid classification
- ✓ principle of intellectual grid developing;
- ✓ electrical energy market features;

Skills:

- ✓ design active filters, balancer and compensator on basis power converters.

Experience:

- ✓ simulation of renewable energy sources;
- ✓ design and simulating of compensators on basis three face invertors.

COURSE DURATION: 36 hours of lection; 36 hours of practice.

REQUIREMENTS TO STUDENTS: knowledge about power components base, electric circuits theory.

