Presentation of the
Institute of Energy Saving and Energy Management,
National Technical University of Ukraine
“Igor Sikorsky Kyiv Polytechnic Institute”

Yuliia Chernetska, Deputy Director of IEE on international cooperation

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Erasmus+ KA-107, Staff Week at the
University of Ecology and Management in Warsaw
Agenda

1. General information about the Institute of Energy Saving and Energy Management (IEE) within Igor Sikorsky Kyiv Polytechnic Institute

2. Structure of the IEE: departments, bachelor’s and master’s degree programs

3. R&D, engineering and consulting activity

4. Recent international projects in cooperation with IEE
1. General information: Igor Sikorsky Kyiv Polytechnic Institute

Kyiv Polytechnic Institute (since 2016 - Igor Sikorsky Kyiv Polytechnic Institute) was founded in 1898. Today it ranks 4% of the best universities of the world according to the international rating QS and Webometrics. University annually holds the highest positions among the best higher educational establishments of Ukraine – “Compass” and “TOP-200 Ukraine”.

Main building of the university
Some facts about Igor Sikorsky Kyiv Polytechnic Institute

Igor Sikorsky Kyiv Polytechnic Institute is one of the biggest educational establishments in Europe. It trains 25 thousand of students, postgraduates and doctorates.

University has 19 faculties, 9 educational and scientific institutes, several scientific and research institutes and educational centers.

University buildings and hostels are scattered over the area of approximately 120 hectares. This is a real city inside the city. The university has its own Center of culture and art, modern sport complex, policlinics, its scientific and technical library is one of the best in country.
University has powerful institutional capability for international cooperation

... as well as wide experience of cooperation with different international organizations
Institute of Energy Saving and Energy Management (IEE) within Igor Sikorsky Kyiv Polytechnic Institute was established in 1997. Now it is a leading educational, training, R&D and consulting institution in the field of sustainable energy development, energy efficiency and energy management in Ukraine.

The main tasks of IEE include:

- the creation and promotion of "energy awareness" in various aspects of human life and production activity;
- training, professional skills improvement and retraining for specialists in the field of energy management;
- development, continuous improvement and dissemination of methodology and information materials in schools, universities, industrial enterprises and organisations in other sectors of economy;
- R&D and design activities relating to the sustainable energy development, efficient use of energy, environmental and energy management system, climate change problem.
2. Structure of the Institute of Energy Saving and Energy Management

The institute consists of 7 departments, 15 research laboratories, Training Centre for Energy Managers and Educational and Scientific Center “Energy for Sustainable Development”.

1. Department of Electric Power Supply: ep.kpi.ua
2. Department of Heat Engineering and Energy Saving: te.kpi.ua
3. Department of Automation of Electrotechnical Complexes: auek.kpi.ua
4. Department of Environmental Engineering: ecology.kpi.ua
5. Department of Electromechanical Equipment of Power-Consuming Industries: emoev.kpi.ua
6. Department of Geoconstruction and Mining Technologies: geobud.kpi.ua
7. Department of Labor Protection, Industrial and Civil Safety: opcbl.kpi.ua

Training Centre for Energy Managers: tcem.iee.kpi.ua
Educational and Scientific Center “Energy for Sustainable Development”: ep.kpi.ua/uk/laboratory
Training Center for Energy Managers

Training Center for Energy Managers is an independent organization founded on the base of the Igor Sikorsky Kyiv Polytechnic Institute to provide continuing education courses. The major purpose of the center is to transfer the experience and "know-how" of the European Union in the field of energy management for energy efficiency in all sectors of the economy.

The center is equipped with modern technologies and equipment in the field of energy saving to demonstrate the benefits of energy efficiency and achievements of various countries.

The high-level professionals perform training at the department. Most of them are professors of the Igor Sikorsky Kyiv Polytechnic Institute.

Upon successful completion of training courses, students obtain the state certificate and the certificate of the European Union in English.
Areas and specialties of students training at the IEE

- Electrotechnical Complexes and Systems
- Power Systems and Complexes
- Technical Thermal Physics and Industrial Power System
- Open-pit Mining
- Geotechnical and Mining Mechanical Engineering
- Occupational Safety and Health
- Engineering Ecology and Resource-Saving
- Power Supply Systems
- Engineering of Electrical Systems
- Energy Management and Energy Efficiency
- Electromechanical and Mechatronics Systems of Energy-Intensive Industries
- Energy Management and Engineering
- Mining and Extraction of Minerals
- Geotechnical and Urban Underground Construction
### Master’s Programme “Power Supply Systems”: main courses

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<td>Intelligent information technologies in Power Engineering</td>
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<td>Systems of Intelligent Power Engineering (Smart Grid)</td>
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<td>Distributed generation in Electric Power Supply Systems</td>
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<td>Intelligent electrical networks and systems</td>
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<td>Management of industrial electrotechnical systems and complexes</td>
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<td>Management of local and municipal power systems and electrical supply</td>
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### Master’s Programme “Energy Management”: main courses

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<td>Integrated energy management system according to ISO 50001</td>
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<td>Energy management systems for industrial and municipal facilities based on the concept of Smart Grid</td>
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<td>Energy management system for optimization of production, distribution and energy usage</td>
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<td>Integrated systems of environmental and energy management</td>
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<td>Innovative energy-saving technologies and energy efficiency in industry</td>
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<td>Integrated control for energy saving in enterprises</td>
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<td>Liberalized energy markets</td>
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3. R&D, Engineering and consulting activity

IEE works in such directions that can be interesting for the University of Ecology and Management in Warsaw:

- sustainable energy development;
- analysis, forecasting and control of energy utilisation;
- multicriteria optimisation of resources allocation;
- multifunctional tariff system for electricity with environmental issues;
- demand side management;
- energy market;
- normative documents, standards and application of rules for metering equipment for electricity account in market conditions;
- state standards and normative documents in the field of energy saving;
- environmental and energy management systems according to ISO 50001;
- climate change problem;
- renewable energy sources and distributed generation;
- energy audit methodology.
International conferences at IEE, scientific journals

Every year in spring IEE organises two International scientific-technical, methodological conferences:

**Problems of Energy Management System – PEMS:** pems.kpi.ua

**Energy. Ecology. Human:** en.iee.kpi.ua

Four times per year IEE publish scientific journal “**Power Engineering, Economics, Technique, Ecology:** energy.kpi.ua
4. Recent international projects in cooperation with IEE

The project entitled “Professionalization and Stabilization of the Ukrainian Energy Management” was completed in 2016 in cooperation with University of Applied Management Studies (Germany), funded by German Federal Foreign Office.

The main goal of the project was mutual preparation and implementation of the special educational program in Energy management for representatives of Ukrainian government and local self-government employees responsible for energy efficiency in the city or region.

The educational program included 4 seminars in Kyiv and in Mannheim (Energy Management Aspects, Technologies for Renewable Energy, Future Trends in Energy Business, Smart Energy Technologies), project participants also have visited German energy companies “RWE” and “GKM Großkraftwerk Mannheim”.

After the seminars completion IEE has published on-line the “Handbook of Best Practices” with the project materials.
Partner universities under Erasmus+

Partner universities, that have cooperated with IEE for the exchange of students and/or staff in the context of the Erasmus+ Programme (credit mobility):

**Rzeszow University of Technology, Poland**
Faculty of Civil and Environmental Engineering and Architecture
Subject area:
0712-Environmental protection technology (2016)

**Polytechnic University of Valencia, Spain**
Department of Electrical Engineering
Subject areas:
0713-Electricity and Energy (2016)
0712-Environmental protection technology (2016)

**Politecnico di Milano, Italy**
Subject area:
0713-Electricity and Energy (2016)
Partner universities under Erasmus+ (continuation)

**Middle East Technical University, Turkey**
Subject area:
0712-Environmental protection technology (2016)

**University of Luxembourg, Grand Duchy of Luxembourg**
Faculty of Science, Technology and Communication
Subject areas:
0713-Electricity and Energy (2017)

**Friedrich Schiller University Jena, Germany**
Subject area:
0712-Environmental protection technology (2017)

**University of Groningen, Netherlands**
Subject area:
0712-Environmental protection technology (2017)
Current Project in cooperation with University College of Southeast Norway (SIU - Eurasia Programme)

The project «Norwegian – Ukrainian cooperation on research based education in innovative sustainable and energy efficient systems: CPEA-LT-2016/10044» is carrying out by the University College of Southeast Norway in cooperation with Igor Sikorsky Kyiv Polytechnic Institute and with financial support from the Norwegian Centre for International Cooperation in Education (SIU - Eurasia Programme).

Starting project meeting
05.04.2017
Norwegian-Ukrainian cooperation on research based education in innovative sustainable and energy efficient systems: the main project goals

1. To facilitate knowledge transfer between the faculty of both institutions for the development of the new PhD program in Energy Management Systems and Smart Grids, to be offered by the IEE, and according with the Bologna process guidelines.

2. To develop joint courses (taught in English) to enhance the master and PhD programs at the IEE and at the Department of Electrical Engineering, Information and Cybernetics, University College of Southeast Norway, and make the developed learning materials available for e-learning.

3. To facilitate the exchange of students and faculty between both institutions, the co-supervision of projects and thesis, and the joint publication of research results in innovative sustainable and energy efficient systems.
Thank you for your attention!

We are open for cooperation with Polish institutions.

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