

AL-FARABI KAZAKH NATIONAL UNIVERSITY
Faculty of Biology and Biotechnology



PROGRAM
of the public educational course
"ENERGY EFFICIENCY AND CLEAN ENERGY"

Almaty 2024

Educational course program

"Energy efficiency and clean energy"

Organizers: Faculty of Biology and Biotechnology

The purpose of the course:

Provide basic knowledge about the principles of energy efficiency, clean energy and their significance for the environment and the economy. The course is aimed at a wide audience and is designed to motivate the population to introduce energy-efficient technologies and practices in everyday life.

Training format:

- **Course duration:** 4 weeks(8 classes of 2 classes per week)
- **Training period:** January 13-February 8, 2024
- **Training location:** Faculty of Biology and Biotechnology
- **Class format:** lectures, seminars, interactive workshops and practical exercises
- **Target audience:** general public, all interested parties (no age restrictions)

Course program:

Module 1: Fundamentals of Energy efficiency and clean energy

1. **Lecture 1: Introduction to Energy and Environmental pollution problems**
 - Main sources of energy, impact on climate and human health.
 - The role of green plants in curbing global warming.
 - Consequences of using non-renewable resources.
2. **Lecture 2: Types and principles of clean energy**
 - Overview of renewable sources: solar, wind, hydropower, and biofuels.
 - Advantages and challenges of switching to renewable energy sources.

Module 2: Energy efficiency at home

3. **Workshop 1: Energy-efficient homes and resource savings**
 - Practical tips for reducing energy and water consumption.
 - Modern technologies for the home: energy-saving lamps, insulation systems, smart meters.
4. **Workshop 2: Everyday practices for reducing your carbon footprint**
 - Choose household appliances with energy-efficient characteristics.
 - Rational consumption and waste reduction.

Module 3: Environmental economics and Government support programs

5. **Lecture 3: Environmental Economics and energy saving**

- Economic benefits and social significance of energy conservation.
 - The role of government and business in supporting environmentally friendly technologies.
- 6. Lecture 4: Government programs and subsidies for energy efficiency**
- Review of local and international support programs.
 - How the population can benefit from subsidies and support programs for the transition to energy-efficient technologies.

Module 4: Practical skills and project work

- 7. Workshop 3: Basics of designing eco-friendly solutions for your home and office**
- Participants will develop a plan to improve energy efficiency in their homes or offices.
- 8. Protection of participants ' projects**
- Participants will present their projects developed during the course.
 - Discussion of possible ways to implement the developed solutions and further support.

Advantages for participants:

- Obtaining a certificate of completion of the course.
- The ability to apply the acquired knowledge to reduce energy costs and improve the environmental situation.
- Free access to expert advice after completing the course.

Registration:

- To take the course, pre-registration is required via the link:
- <https://docs.google.com/forms/d/1a2KQe-zvyaMtVy7459RxcRNROZT9cH5IRcKEqFRfQbI/edit>
- Registration is open until December 25, 2024.
- Coordinator:
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