

Fundamentals of environmental and energy sustainability of production

ANNOTATION

TO THE CURRICULUM OF THE INSTITUTION OF HIGHER EDUCATION

Specialty 1-27 02 01 Transport logistics (by directions),

1-27 01 01 Economics and organization of production (by directions)

Qualification of a specialist **Engineer-economist**

	Form of higher education Full-time (daytime)
Semester	4
Lectures, hours	34
Laboratory classes, hours	16
Credit, semester	4
Classroom hours in the academic discipline	50
Independent work, hours	58
Total hours in the academic discipline / credit units	108/3

Summary of the discipline

The environment as systems. Basic laws of ecology and rational nature management. Natural resources and their use. The impact of the company on the environment. Basics of regulation in the field of environmental protection. Environmental quality management tools. Legal regulation of economic activity in environmental management. Organization of energy saving management in the Republic of Belarus.. Regulatory and legislative framework in the field of energy saving. Methods of obtaining, transporting and using energy. Renewable energy sources. Secondary energy resources. Accounting and regulation of energy resources. Energy saving in industry. Energy saving in buildings and structures. Energy saving in everyday life. Organization of energy management at an industrial enterprise. Energy audit. Development of an energy saving program for an industrial enterprise.

2 Learning outcomes

**To know:**

- patterns of functioning of natural ecosystems and the biosphere;
  - features of the interaction of production and the natural environment;
  - environmental problems arising from production (environmental pollution and depletion of natural resources);
  - methods of environmental management in order to reduce anthropogenic impact and organize sustainable production;
  - the main directions of the state policy in the field of energy saving;
- methods of production, transport and consumption of thermal and electrical energy, as well as the main ways to improve their efficiency;
- environmental and economic problems of energy and the main ways to solve them ;

**can:**

- assess the level, consequences of environmental pollution and depletion of natural resources;
- predict the consequences of anthropogenic pressure on the environment;
- justify the choice of methods to reduce the impact on the environment;
- use regulatory and legal documents in the field of environmental protection;
- implement a systematic approach to the organization of energy efficiency,
- evaluate technological processes and devices in terms of their energy efficiency;
- use devices for metering, control and regulation of thermal and electrical energy;
- introduce modern information technologies into practical activities, form and use databases of energy-efficient technological processes, units and devices;
- использовать и пропагандировать основные методы энергосбережения и повышения энергоэффективности;

**владеть:**

- анализом критериев качества окружающей среды;
- методиками определения состояния окружающей среды;
- методами определения энергосбережения и энергоэффективности производства.

3. Формируемые компетенции

Код	Наименования формируемых компетенций
для 1-27 02 01 -БПК- 9 для 1- 27 01 01 БПК-10	Быть способным оценивать экологическую и энергетическую устойчивость материалов, технологий и производств, формировать меры защиты населения в чрезвычайных ситуациях, обеспечивать радиационную безопасность, разрабатывать мероприятия по охране труда, способы и методы безопасного производства работ, защиты жизни и здоровья людей

4. и формы текущей и промежуточной аттестации

- устная (устные зачеты);
- письменная (контрольная работа);
- устно-письменная (защита лабораторных работ).

Для оценки уровня знаний обучающихся используются следующие средства диагностики:

- тестовые / контрольные задания;
- вопросы к практическим работам, к зачету.