BASIS OF ENVIRONMENTAL AMD ENERGY SUSTAINABILITY OF PRODUCTION

(course title)

COURSE SYLLABUS ABSTRACT

Specialty: 6-05-0713-04 Automation of technological processes and production **Profiling:** Automated electric drives

Specialty: 6-05-0716-03 Information and measuring devices and systems Information and measuring devices and systems

Profiling: Information systems and technologies for non-destructive testing and diagnostics

	STUDY MODE		
	full-time	part-time	part-time (shortened program)
Year	4	3	4
Semester	7	7	7
Lectures, hours	16	4	4
Laboratory classes, hours	16	4	4
Pass/fail, semester	7	7	7
Contact hours	32	8	8
Independent study, hours	76	100	100
Total course duration in hours/cre	108/3	108/3	108/3

1. Course outline

Environment as a system. Basic laws of ecology and rational nature management. Natural resources and their use. The impact of the enterprise on the environment. Fundamentals of regulation in the field of environmental protection. Environmental quality management tools. Legal regulation of economic activity in nature management. Organization of energy saving management in the Republic of Belarus. Normative-legislative base in the field of energy saving. Ways of obtaining, transporting and using energy. Renewable energy sources. Secondary energy resources. Accounting and regulation of energy resources. Energy saving in industry and construction. Energy saving in buildings and structures. Energy saving at home. Organization of energy management at an industrial enterprise. Energy audit. Development of an energy saving program for an industrial enterprise.

2. Course learning outcomes

Upon completion of the course, students will he expected to know:

- patterns of functioning of natural ecosystems and the biosphere;
- features of interaction between production and the environment;
- environmental problems resulting from production (environmental pollution and depletion of natural resources);
- methods of environmental management in order to reduce the 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; be able to:
- assess the level and consequences of environmental pollution and depletion of natural resources;
- predict the consequences of anthropogenic load on the environment;
- justify the choice of methods to reduce environmental impact;
- use 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 metering, control and regulation of thermal and electrical energy;
- introduce modem information technologies into practice, form and use databases of energy-efficient technological processes, units and devices;
- use and promote the main methods of energy saving and energy efficiency; to possess a skill:
- analysis of environmental quality criteria;
- methods for determining the state of the environment;
- methods for determining energy saving and energy efficiency of production.

3. Competencies: apply basic methods of protecting the population from negative factors of anthropogenic, technogenic, and natural origin, principles of rational use of natural resources and energy conservation, and ensure healthy and safe working conditions.

4. Requirements and forms of midcourse evaluation and summative assessment

Test work and intermediate certification in the form of a test in written form serve as a form of monitoring current progress.