

Course Annotation

Course Title: **Technoecology**

Total course duration – 3 ECTS Credits (108 hrs.)

Course Objective

Mastery of impact of the main types of modern technologies on environmental constituents with integrate assessment of mechanisms, environmental impacts and justification of the man-made landscape restoration techniques, implementation of alternative technologies and environmentally friendly technologies.

Course Tasks

Knowledge formation concerning the sources of biosphere pollution from various industrial production and industrial flows, quantitative and qualitative characteristics of pollutants; the ability to evaluate environmental impact of the main mining processes, industry processes, metallurgical, chemical industries, power engineering, transport, agriculture, etc. and justify the environmental measures aimed to improve the environmental quality.

Course main chapters

The structure and composition of the biosphere: atmosphere, hydrosphere and lithosphere. The problems connected with the biosphere pollution as a result of anthropogenic activity. The impact of mining on environment: mining technology and the forms of disturbance at natural environment while developing mineral deposits. Metallurgy as a powerful factor of negative impact on the environment: technologies of blast-furnace production, iron and steel production, electrometallurgy. Cleaning of technological gases from dust and gaseous mixtures at steel production. Integrated influence of power engineering on environment: hydropower station, thermal power plants, nuclear power plants. Operational principle of of thermal, nuclear and hydropower plants. Impact of transport on the environment. Impact of agriculture on biosphere. Alternative energy sources and the perspectives of their implementation in Ukraine. Aspects of the implementation of environmentally friendly technologies.

Learning outcomes

After attending the course students will be able to:

- analyze different types of pollution from various industries, their qualitative and quantitative composition;
- evaluate the impact of industrial production on environment;
- calculate the number of contaminants, the indices of individual and complex man-made loads on natural objects and ecosystems;
- classify technogenic pollution originally and danger level for biosphere.

Teaching methods used:

- lectures and practical studies
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Final **assessment** of student's knowledge and practical skills is **test**.

**Head of the Ecology Department,
Professor**

A.I. Gorova