

Course Summary

Course Title: ECOLOGICAL PROBLEMS OF POWER ENGINEERING

Credits: 3 (108 hours)

Course objective

Theoretical knowledge and practical skills acquisition in the identifying of power engineering environmental problems.

Course tasks

Knowledge formation in the field of generating electrical and thermal energy up-to-date methods, energy development strategy in Ukraine, energy obtaining non-traditional methods.

Course outline

The modern view of the national and global processes in the energy sector; power engineering state and characteristic in Ukraine; its main environmental problems; energy conversion and energy use processes; thermal power plant environmental impact; nuclear power plant environmental impact; hydropower environmental impact; energy resource supply; international and national non-traditional energy potential; solar energy; wind energy; minor hydro-energy; biomass energy; geothermal energy; tidal energy; marine energy and ocean wave energy; ocean thermal energy; secondary energy resources. Sustainable energy development prospects.

Learning outcomes

After completing the course the students should be able to:

- Know the current national and global processes in the energy sector;
- Be able to analyze the energy state and characteristics in Ukraine;
- Know the processes of energy transformation and use;
- Be able to analyze the thermal power plants environmental impact;
- Be able to analyze the nuclear power plants environmental impact;
- Be able to analyze the hydropower environmental impact;
- Know the energy sector providing resource;
- Be able to analyze the international and national potential of alternative energy;
- Know the non-traditional energy sources;
- Know the sustainable energy development prospects.
- know and be able to perform correlation analysis;
- know and be able to perform regression analysis;
- know how to plan the study.

Training activities: lectures and practical studies.

End-of-the-term assessment: examination.

Head of the Ecology Department,

Professor A.I. Gorova