

Course Annotation

Course Title: **Methods of Measuring Environmental Parameters**

Credits: 4 (144 h.)

Course objective

To provide insight into the variety of methods and means of environmental state control.

Course tasks

To create awareness of the basic chemical, physical and physicochemical methods of measurement of environmental parameters.

Course main chapters

The development of the "dimension" concept. Fundamentals of metrology. Basic measurement types and procedures. Framework for the environmental analysis. Methods employed to assess environmental parameters, sampling, transportation and preservation of samples, sample preparation for analysis, statistical analysis of results. Chemical analysis of the environment. Gravimetric method. Range of the gravimetric method application in nature-conservation. Titrimetric method. Range of the titrimetric method application in environmental protection practice. Gazovolumetric method. Physical methods of analysis of the environment. Spectrophotometric method. Optico-acoustic method. Photo colorimetric method. Spectroscopic methods. Flame-ionization method. Mass-spectrometric method. Thermal methods. Range of physical methods application in the environmental protection practice. Physico-chemical methods of analysis. Chromatographic method. Conducto-metric method. Potentiometric method. Range of the physico-chemical methods application in the environmental protection practice.

Learning outcomes

After attending the course students will be able to:

- Approach to the analysis of the environment in accordance with the objectives of research,
- Take samples of objects of the environment in accordance with the requirements of appropriate methods of analysis,
- Perform statistical treatment of measurements, calculate measurement error;
- Know methods of preservation, dilution, concentration, and concealment of samples;
- Determine a sufficient amount of the environmental samples, taking into account the method of analysis,
- Display test results in a confidence interval and evaluate the accuracy of the analysis;
- Analyze the results of measurements of environmental parameters in terms of their compliance with sanitary requirements.

Teaching methods used:

- lectures and laboratory training sessions.

Final **assessment** of student's knowledge and practical skills is **examination**.

**Head of the Ecology Department,
Professor**

A.I. Gorova