

Field of study: ENVIRONMENTAL ENGINEERING
Specialization: Advanced Technology in
Environmental Engineering (ATEE)

1. Basic systematics of engineering safety systems.
2. The main types of hazards and released energy due to a failures and disasters.
3. Composites - properties and their application.
4. Examples of quantitative features and classic measurement positions in statistics.
5. Photochemical reactions in the atmosphere.
6. Discuss the steps of chemical analysis process.
7. List the types of analytical methods. Discuss one of them.
8. Strategic activities in waste management.
9. Recycling of waste - rules, examples.
10. Modern landfills – construction, environmental protection.
11. Basic unit operation and process in water treatment.
12. Water disinfection methods and drinking water quality standards.
13. General strategy of biological wastewater treatment. Name three different types of activated sludge systems and explain their differences.
14. Describe the conditions for biological phosphorus removal from wastewater.
15. Design principles for the sewage system.
16. Describe possible applications of EPANET software.
17. Main forces acting on particle movement in the gas velocity field.
18. The influence of the state of the atmosphere balance on the distribution of air pollutants.
19. Discuss the models of pollution propagation in the atmosphere.
20. Describe the methods of SO₂ and NO₂ mass concentration measurement.
21. Characterize optical method of dust measurement.
22. Spatial Information Systems (SIP, GIS) - basic features and areas of application.
23. Clean coal technologies.
24. Technologies for waste to energy.
25. Present the division of Renewable Energy Sources and briefly characterize them with reference to energy storage capabilities.
26. Sketch and discuss the probable forecast of global energy demand and energy supply, and describe the concept of Post-Peak Energy Gap.
27. What facility can be used to recover waste energy from industry processes.
28. Methods for assessing economic feasibility of energy related projects. Describe economic indexes used for taking investment decision.
29. Classification of heat and mass transfer processes.
30. Design procedure for selected type of heat exchanger (shell and tube heat exchanger, condenser or reboiler).
31. Characteristic of bioreactors for microorganism cultivation.
32. Principles and applications of Particle Image Velocimetry.