

1. Application of electrochemistry in environmental protection
2. Atomic absorption and emission spectroscopy - similarities and differences
3. Biopolymers - definition, some examples.
4. Calibration method in analytics.
5. Classification of oils.
6. Criteria of chromatographic column choice.
7. Definition and examples of bioindicators.
8. Derivatization in analytical chemistry.
9. Describe, how water can be used as a renewable energy source.
10. Detectors used in chromatography. Select two common ones and describe them.
11. Differences between passive and active sampling. Advantages and disadvantages of passive and active sampling.
12. Discuss four groups of bioplastics (bio-based, fossil-based, non biodegradable, biodegradable).
13. DNA repair.
14. Ecological aspects of mineral processing.
15. Elimination of consequences of marine environmental disasters.
16. Environmental application of heterogenous photocatalysis.
17. Environmental tracers - aim, features, applications.
18. Gene expression.
19. Hazards in the work environment.
20. High performance liquid chromatography – principle and applications.
21. Instrumental techniques in environmental biology.
22. Levels of protein structure.
23. Lipopolysaccharide LPS as target of new antibiotics.
24. Main map projections.
25. Mechanisms and errors in DNA replication.
26. Methods for quality assurance and control.
27. Microplastics - definition and problems connected with them.
28. Modern analytical techniques in food quality analysis.
29. Principles and application of Gas Chromatography.
30. Principles of TEM microscope.
31. Process of ultra-pure water production.
32. Production of biodiesel.
33. Qualitative analysis in chromatography.
34. Quantitative methods in chromatography.
35. SIM and SCAN mode applied in mass spectrometry.
36. Thermoplastic Starch - properties and usage.
37. Types of DNA mutations.

38. What are hydrogels and how they can be used in soil protection?
39. What is flocculation process and how it can be used for water cleaning in the wastewater treatment plant?
40. What is Green Economy?
41. What is speciation analysis?

Specialization:

1. Advantages and disadvantages of different 3d printing techniques.
2. Advantages and limitations of polyurethane polymer in the medicine.
3. Advantages of additive manufacturing (3d printing) over subtractive techniques.
4. Bioluminescence of organisms.
5. Characteristics of Pickering emulsions.
6. Demulsification: principle, methods, application.
7. DNA isolation.
8. DNA repair.
9. Emulsion destabilization mechanisms.
10. Food additives - types and purpose of usage.
11. Give destabilizing processes of emulsions. Describe one of them.
12. Interpolation techniques in GIS.
13. Materials used in 3d printing technology.
14. Metabolism and digestion of fats in human body.
15. Methods for determination of emulsion stability.
16. Micellization process.
17. Modern sample preparation technique. Point out them, describe one of them.
18. Particulate Matters concentration limits.
19. Polycyclic Aromatic Hydrocarbons: physico-chemical properties, procancerogenic character, methods of the determination.
20. Principle and application of Ion Chromatography.
21. Raster and vector layers in GIS.
22. Resistance development in microorganisms.
23. Solubilization mechanism.
24. The principle and application of PCR.
25. Total Organic Carbon.
26. Toward green sample preparation techniques.
27. Types of emulsions according to the size.
28. What is Rheology? Describe Newtonian fluids.