12 TECHNIQUES AND TOOLS FOR DEVELOPING METHODS OF WATER RESOURCES PROTECTION AND NATURAL DISASTER PREVENTION

Teachers: Kazakis N., Assis. Professor
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The course covers the following topics:

1. Introduction to water resources - Natural disasters. Repetition of basic concepts in hydrogeology
2. Vulnerability and risk of groundwater
3. Flood risk
4. Examples from the international literature
5. Indicator methods, hybrid models, simulation models
6. Utilization of Geographic Information Systems in the development of new methods
7. Analytical Hierarchical method for determining gravity
8. Optimizing methods with correlation coefficients
9. Optimizing methods with sensitivity analysis
10. Development of a method for assessing groundwater vulnerability
11. Development of a method for assessing the risk of flooding
12. Development of methods for identifying infrastructure sites
13. Evaluation and verification of the reliability of methods. Repetition/summary of the material - Presentation of Issues

At the end of the course the student is competent:

· To understand the concept of ground water vulnerability, flood risk and landslide susceptibility
· To classify parameters that affect the vulnerability of groundwater, the risk to flooding phenomena and the susceptibility to landslides
· Recognize indicator methods, hybrids and simulation methods
· To utilize the method of Analytical Hierarchical Analysis
· Use the Geographic Information Systems and their tools for hydrological, hydrogeological and morphological data processing to develop new methods
· To propose and design methods for the protection of water resources
· Assess methods of protecting water resources and preventing natural disasters
· Develop and present a theme related to the protection of water resources and the prevention of natural disasters

Teaching Mode: 3 Hours Suggestion-Workshop / Week