Level: Master

Course title: Modelling of Environmental Processes

Status: elective

ECTS: 6

Requirements: none

Learning objectives

To enable students to understand the principles of setting up models for selected processes in the environment and apply simple models for monitoring, forecasting, and management processes in the environment.

Learning outcomes

The student will be able to

• describe the purpose, types of models and modelling principles in environmental protection
• apply simple models (e.g. modelling of adsorption of pollutant transport through porous media)
• solve simple problems related to the definition of the transport of pollutants in the environment
• create diagrams and conceptual OPSIS equations for the movement and transformation of pollutants in the environment
• describe and demonstrate the use of commercial software for risk assessment using the demo version of Risc4

Syllabus

Theoretical instruction

Modelling in Environmental Chemistry: What kind of modelling and model. Biogeochemical models. Ecotoxicological and toxicological models. Chemically specified models. Modelling of biological treatments. Process models of physical-chemical treatments. Principles of modelling tools in modelling: transport and reaction-random movement, the boundaries of the environment, box models, modelling of adsorption: equilibrium, kinetics, factors that affect processes, the application process, models of diffusion through a film on a homogeneous surface. Models that represent physical and environmental phenomena.

Practical instruction

Practical teaching follows the theoretical lessons.

Weekly teaching load				Other:
Lectures: 2 (30)	Exercises: AV 2 (30)	Other forms of teaching:	Student research:	