Level: Bachelor

Course title: Water protection

Status: obligatory for OZZS/elective for OKK

ECTS: 8

Requirements: none

Learning objectives

Train students for management and control of water protection, quality control of natural and waste water, management and wastewater treatment.

Learning outcomes

Mastering the necessary knowledge about the chemical processes in aquatic ecosystems. Understanding the process of wastewater treatment and control of equipment for waste water treatment

Syllabus

Theoretical instruction

Introduction to the hydrologic balance of quality indicators and elementary considerations of natural waters. Studying processes in natural waters, as well as the processes that lead to chemical, biological and thermal water pollution. Mastering the behaviour of specific processes of chemical pollutants in water and production of waste water (municipal, industrial, and urban). Understanding basic wastewater treatment processes: mechanical, chemical and biological processes. Reuse of waste water, treatment and disposal of sludge from the wastewater treatment process. The joint treatment of municipal and industrial wastewater. The standard methodology for controlling the operation of a wastewater treatment plant. Mastering the basics of operation management.

Practical instruction

Determination of physico-chemical, organic and inorganic water quality parameters and data interpretation. Determination of the solubility of gases, oxidation-reduction potential of water distribution coefficient in the water / sediment for selected materials. Sampling, methods of measurement of the amount of wastewater and definition of parameters to be analyzed according to the type of manufacturing process. Determination and interpretation of the technological parameters of the process of wastewater treatment in order to control the treatment plant. Computational exercises related to their respective areas. Use of a software package for calculating parameters in the wastewater treatment process.

Weekly teaching load				Other:
Lectures: 45	Exercises: 45	Other forms of teaching: 15	Student research:	