

Level: Bachelor				
Course title: Modern techniques in water protection				
Status: obligatory for OZZS				
ECTS: 6				
Requirements: none				
Learning objectives				
The aim of the course is to master technological processes for conventional and modern wastewater treatment techniques, as well as considerations related to design, implementation and management in the wastewater treatment plant.				
Learning outcomes				
After completing the course, students have fundamental knowledge about processes in wastewater treatment, with a special emphasis on modern techniques in wastewater treatment. Theoretical and practical aspects of innovative technologies for new systems, as well as improvement of old wastewater treatment systems have been overcome.				
Syllabus				
<i>Theoretical instruction</i>				
A detailed review of water treatment, from primary (pre) treatment, through biological secondary treatment to tertiary treatment. Special accent is given in modern ways in water treatment (ion exchange, ozonation, adsorption, ultra-filtration, membrane processes, UV disinfection). For each technique it is indicated what water quality can be achieved.				
<i>Practical instruction</i>				
Determination of methods for controlling the physical process of wastewater treatment, control of the physical-chemical and chemical process of wastewater treatment and control of the biological process of wastewater treatment. In order to enable the student to have an insight in the quality control of individual combined methods for purification, the control of the process of organic matter removal and nitrification of nitrogen compounds, control of the biological process of the removal of nitrogen and phosphorus compounds from wastewater and control of the treatment and final disposition of sludges from the purification process wastewater.				
Weekly teaching load				Other:
Lectures: 2	Exercises: 3	Other forms of teaching:	Student research:	