WATER PURIFICATION AND WASTEWATER TREATMENT TECHNOLOGIES

Title of Study Programme and Code	Type (compulsory/optional)	Cycle	Year of study when the component is delivered (if applicable)
Environment Protection Engineering, 6531EX042	Compulsory	1st	2nd
Semester/trimester when the component is delivered	**Number of ECTS credits allocated**	**Language of instruction**	**Mode of delivery (face-to-face/e-learning/…)**
4th	8	English	Face-to-face

Learning outcomes		Study methods	Assessment methods
After completion of the study subject, a student should be able:		Interactive lesson; Practical work; Individual work, preparing for control work and practical work; Consultations.	Test; Practical work assertion; Examination.
LO 1	To gain basic knowledge related to water quality improvement methods, water resource management, water treatment technologies and is able to apply them to address environmental challenges.		
LO 2	To carry out water treatment chemical reagent demand for laboratory tests.		
LO 3	To analyze information related to water treatment and wastewater treatment technologies		
LO 4	To calculate the key items of equipment parameters.		
LO 5	To carry out water treatment and waste water treatment plant environmental impact assessment.		
LO 6	To know the water treatment and wastewater treatment plants operating principles, the basic operating parameters.		
LO 7	To select the most appropriate water treatment and wastewater treatment technologies.		
LO 8	To analyze the particular environmental problems / challenges in choosing the right solution.		
LO 9	To solve environmental engineering problems related to water resources independently.		

Prerequisites (these courses must be sucessfully completed prior to taking this particular course)
Chemistry, Mathematics, Physics, Information Technology and Engineering Computer Graphics.
Course content
1. Water use regulation. Wellfield. 2. Water treatment methods.

3. Environmental Impact Assessment.
4. Wastewater. Waste water volumes. Sewage pollution characteristics.
5. Wastewater treatment principles. The main technological processes.
6. Mechanical wastewater treatment.
7. Biological wastewater treatment.
8. Nitrogen and phosphorus removal from wastewater.
9. Wastewater sludge and its processing.
10. Individual wastewater treatment.
11. Industrial Wastewater Treatment Technology..
12. Surface wastewater treatment.

Recommended or required reading and other learning resources/tools

1. David L. Russell (2006) Practical Wastewater Treatment, Wiley.
2. Marquita K. Hill (2010) Understanding Environmental Pollution, Cambridge.
3. Nicholas P. Cheremisinoff (2010) Handbook of water and wastewater treatment tehnologies, Butterworth Heinemann.
4. Michael E. Kraft (2010) Environmental Policy and Politics, Pearson Longman.