Study program: **Urban Engineering**

Type and level of studies: **Bachelor academic studies**

Course unit: **Technology and plants for the water and air treatment**

Teacher in charge**: Ph.D. Vanja M. Sustersic, assoc. prof.**

Language of instruction: **English**

ECTS: **6**

Prerequisites:

Semester: **Summer Semester**

Course unit objective:

Obtaining the necessary knowledge about the treatment of drinking water and wastewater, as well as knowledge about the treatment of air. The aim of the classes is for students to be competent, that on the basis of the existing and new technologies and they be able to design and make decisions which of the plants are better for water and communal systems.

Learning outcomes of Course unit:

After finishing this course, students will be able, own or as a team, to solve the problems that are related to technology and projecting system for the treatment of drinking water, wastewater or air. They will also be able to successfully resolve problems related to the issue of municipal water systems and to manage modern waterworks and sewage systems.

Course unit contents

Theoretical classes:

Hydro-geological cycle. Protection of sources. Legal regulations. Treatment of drinking water. Shuffle and flocculation. Sedimentation. Filtering. Adsorption. Softening. Conditioning plants for drinking water. Treatment of wastewater. Sedimentation, aeration. Biological treatment of wastewater. Treatment plants for the wastewater. Treatment plants for air. Cyclones. Multicyclones. Electrostatic air filters.

Practical classes:

Within the exercises, but also by independent work, students will do two projects, which provide calculation and designing of the plant for treatment of water or air in a 3D environment. At the same time, the visit to the city communal system will be provided, where students will learn about the work of the plants for the treatment of drinking water and plants for the treatment of wastewater.

Literature

1. Letterman, R.D.: Water Quality and Treatment - A Handbook of Community Water Supplies (5th Edition), McGraw-Hill, 1999
2. Hester, R.E., Harrison R.M.: Waste Treatment and Disposal, Royal Society of Chemistry, 1995
3. Mark J. Hammer, Mark J. Hammer, Jr.: Water and Wastewater technology, PearconPrentice Hall, 2004

Number of active teaching hours				**Other classes**
Lectures: **5**	Practice:	Other forms of classes:**mentoring system**	Independent work:	

Teaching methods:

By the use of modern teaching resources - video presentations and educational films - students will be prepared for interactive work. Exercises consist of two homeworks and verified knowledge from two tests and a final work.

Examination methods (maximum 100 points)

Exam prerequisites	**No. of points:**	**Final exam**	**No. of points:**
Student's activity during lectures		oral examination	**10**
practical classes/tests	**2*20**	written examination	**10**
Seminars/homework	**2*20**	.....	
Project			
Other			

Grading system

Grade	**No. of points**	**Description**
10	**91-100**	Excellent
9	**81-90**	Exceptionally good
8	**71-80**	Very good
7	**61-70**	Good
6	**51-60**	Passing
5	**0-50**	Failing