

Course title: Wastewater treatment technologies

Course basic information	
Academic unit:	Faculty of Civil Engineering
Course title:	Wastewater treatment technologies
Level:	BSc
Course status:	Mandatory
Year of study:	3 rd Year/5 th Semester
Number of classes per week:	2+2
ECTS Credits:	6 ECTS
Time/Location:	According to the timetable
Teacher:	Prof.Asoc. Figene Ahmedi
Contact details:	Email: figene.ahmedi@uni-pr.edu Tel: +381 38 554 899/103
Course description	<p>Course adresses the needs of water quality and the manners how the adequate water quality may be achieved by treating the water before serving for drink, and treating wastewater before discharging it in receiving waters. Initially, the subject discuss the basic concepts of wastewater treatment (WWT). The focus lies on the description of some basic pollutants and treatment technologies used for WWT.</p> <p>Topics included (covered):</p> <ol style="list-style-type: none"> 1. Basic properties and quality characteristics of water 2. Material balance, reactions and recators 3. Standards of water and wastewater 4. Drinking water treatment technologies 5. Wastewater treatment technologies 6. Factors of concern to water treatment plant design
Course goals:	Increase in demand for healthy environment in our country, imposes the need for the construction of WWT. Therefore, this course aims to give students the opportunity for gaining the basic knowledge in the field of WWT: by analyzing wastewater treatment processes and their appropriate application.
Expected learning outcomes:	<p>Students who attend the course will be able to:</p> <ul style="list-style-type: none"> • Describe the fundamentals of water quality, and categorize the water quality in relation to required quality and standards • Describe and select the right processes of wastewater treatment • Schematize the wastewater treatment systems

Student workload (should be in compliance with student's Learning Outcomes)			
Activity	Hours	Day/Week	Total
Lectures	2	15	30
Theory/Lab work/Exercises	2	15	30
Practical work			
Midterm test preparation	2	15	30
Consultation with the teacher	1	6	6
Field work			
Test, seminar paper	2	2	4
Homework	2	12	24
Self-study time (library or home)			8
Preparation for final exam			10
Assessment time (test, quiz, final exam)			8
Projects, presentations, etc.			
Total			150
Teaching methods:	Through lectures, class-works (exercises) and home-works. In order to encourage students with first impressions on wastewater treatment, the visit/s of wastewater treatment plant/s will be arranged as well.		
Assessment methods:	Prerequisite: Urban water management Evaluation is done from 0-100 % First midterm: 35 % Second midterm: 35 % Home works: 30 % Regular attendance – decisive in borderline cases Final exam.		
Primary literature:	1. Ahmedi, F. Teknologjite e Trajtimit te Ujerave, 2010		
Additional literature:	1. Crittenden, J., Montgomery, W. H. Water Treatment Principles and Design. 2nd ed, MWH, Canada, 2005. 2. Metcalf & Eddy, Inc. Wastewater Engineering: Treatment and Reuse. 4th ed, McGraw Hill, Inc., New York, 2003. 3. Qasim, S. R. Wastewater Treatment Plants: Planning, Design and Operation. 2nd ed, CRC, Texas, 1999.		
Design teaching plan:			
Week	Title of the lecture		
Week 1:	Introduction in wastewater treatment technologies: why should be treated wastewater		

Week 2:	Basic properties and quality characteristics of water
Week 3:	Material balance, reactions, and reactors
Week 4:	Water quality standards: drinking water and wastewater standards
Week 5:	Drinking water treatment
Week 6:	Drinking water treatment (cont.)
Week 7:	Drinking water treatment (cont.)
Week 8:	Study visit to drinking water treatment plant
Week 9:	Wastewater treatment
Week 10:	Wastewater treatment (cont.)
Week 11:	Wastewater treatment (cont.)
Week 12:	Wastewater treatment (cont.)
Week 13:	Study visit to wastewater treatment plant
Week 14:	Factors of concern for the design of water treatment
Week 15:	Factors of concern for the design of water treatment (cont.)

Academic policies and code of conduct

Regular attendance of lectures and exercises. Silence in teaching. Entrance in class within time. Tools used during class must be cleaned and stored away at the end of class. Mobile/smart phones, and other electronic devices must be turned off (or on vibrate) and hidden from view during class time. Laptop and tablet computers are allowed for quiet use only (if required for use in class); other activities such as checking personal e-mail or browsing the Internet are prohibited.