

Course Unit Descriptor

Study Programme: Environmental Engineering		
Course Unit Title: Technical systems in the water and air quality protection		
Course Unit Code: OAS129		
Name of Lecturer(s): Assistant Professor Snežana Filip, PhD		
Type and Level of Studies: Bachelor Academic Degree		
Course Status (compulsory/elective): Compulsory		
Semester (winter/summer): Winter		
Language of instruction: English		
Mode of course unit delivery (face-to-face/distance learning): Face-to-face		
Number of ECTS Allocated: 5		
Prerequisites: None		
Course Aims: Introducing the student with the Legal basics of water and air protection and basic technical systems in the air and water protection.		
Learning Outcomes: A student will know how to apply practically the knowledge gained about the Legislation in the field of air and water protection and how to apply the basis of emission limitations an appropriate procedure for the separation of solid particles from the air.		
Syllabus: <i>Theory</i> Application of processes and plants without or with minimal mass of pollutants and waste materials. Air protection; formation conditions, the types and sources of pollutant. Legal bases for emission limits. Determination of the emission of polluting solid and liquid components in the exhaust gases from the process and plant. Distribution of pollutants in exhaust gases. Measures to reduce emissions of pollutants, primary emission reduction measures. Methods and devices for the separation of solid particles from gases for processes and plants: electrostatic precipitators, wet, semi-dry, a dry separator of solid particles. Procedures and devices for separating solid particles from gases from processes and plants: physicochemical basis of wet purification procedures and technical characteristics of the device, physicochemical bases of semi-dry, dry and other purification procedures and technical characteristics of the plant. Characteristics and comparison of processes and plants for gas treatment, technical indicators, degree of environmental protection, investment and exploitation costs. <i>Practice</i> Numerical calculation exercises consist in solving problems in the areas being processed.		
Required Reading: 1. Kiely L. Environmental Engineering. Mc Graw Hill India, 1998. 2. Theodore L. Air pollution control equipment. John Wiley & Sons, INC., Publication, USA, 2008.		
Weekly Contact Hours: 4	Lectures: 2	Practical work: 2
Teaching Methods: Lectures and students group work		

Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points
Active class participation	5	oral exam	60
Test I and Test II	25		
Seminar(s)	10		