

Study Programme: Doctoral Academic Studies in Environmental Protection			
Course Unit Title: Hazardous Waste (advanced course)			
Course Unit Code: DZZS-704			
Name of Lecturer(s): Associate Professor Snežana Maletić			
Type and Level of Studies: PhD degree			
Course Status (compulsory/elective): Elective			
Semester (winter/summer): Summer			
Language of instruction: English			
Mode of course unit delivery (face-to-face/distance learning): Face-to-face			
Number of ECTS Allocated: 15			
Prerequisites: None			
Course Aims: Expanding students' knowledge on methods of identifying hazardous wastes and elements of integrated waste management from the generation site to safe disposal or inactivation.			
Learning Outcomes: Obtaining general knowledge of the properties of hazardous waste, chemistry of inorganic and organic waste, the impact of waste on the environment and human health, and methods for treatment and safe waste disposal.			
Syllabus: <i>Theory</i> Studying the characteristics of hazardous waste and its impact on safety and health. Chemistry of inorganic and organic wastes and persistent organic components of hazardous waste. Studying methods for handling, treatment and disposal of hazardous waste. Treatment of hazardous waste by physical and chemical processes in order to achieve stabilization and detoxification. Methods of sampling and analysis of hazardous waste for the content of specific organic and inorganic components. The study of basic characteristics of hazardous waste from various branches of the chemical industry, agro-industry and households, with special emphasis on medical and infectious hazardous waste. Legislation. Domestic framework, marking hazardous materials (labels for safety and risks), meeting with USEPA list of waste and the European Waste Catalogue. <i>Practice</i> Project development on a selected topic from the curriculum.			
Required Reading: 1. M. Csuros: Environmental Sampling and Analysis, Lab Manual, Lewis Publishers, CRC, 1997. 2. D. H.F. Liu and B.G. Liptak: Hazardous waste and solid, Lewis publishers, 1999. 3. S.E. Manahan: Hazardous waste chemistry, toxicology and treatment, Lewis publishers, 1990. 4. Scientific papers in the field of hazardous waste.			
Weekly Contact Hours: 10	Lectures: 5	Practical work: 5	
Teaching Methods: Lectures, seminar(s)			
Knowledge Assessment (maximum of 100 points): 100			
Pre-exam obligations	points	Final exam	points
Active class participation	5	Written exam	20
Seminar(s)	25	Oral exam	50