

Study Programme: Multidisciplinary Forensic Studies			
Course Unit Title: Chemical Aspects of Ecotoxicology			
Course Unit Code: FH-18			
Name of Lecturer(s): Dr Jasmina Agbaba, full professor			
Type and Level of Studies: Master Academic 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: 6			
Prerequisites: None			
Course Aims: Extensive knowledge in the field of ecotoxicology on chemical characteristics and ecotoxicological consequences of the presence of pollutants in the environment. Dissemination of knowledge on the mechanisms of toxic effects of selected pollutants and the prediction of environmental effects in the function of risk assessment and management.			
Learning Outcomes: Aware of the chemical properties of polluting components in conjunction with their ecotoxicity, which enable a better understanding of the fate of polluting substances in the environment.			
Syllabus: <i>Theory</i> Definition of basic concepts in the ecotoxicology of environmental forensics, basic sources, types and characteristics of toxicants. Physico-chemical transformations of toxicants in the environment and their distribution and transport. Chemical behavior and ecotoxicity of certain groups of pollutants (metals, pesticides, polychlorinated biphenyls and other synthetic organic compounds, petroleum and petroleum products, polycyclic aromatic hydrocarbons, asbestos, radioactive components, etc.). Quantification of toxicity. Predicting of environmental effects, risk assessment and regulatory aspects of eco-toxicology. <i>Practice</i> Searching databases for the information about the toxicity of selected pollutants and interpreting the results obtained. Determination of the octanol/water distribution coefficient for the selected pesticide. Qualitative and quantitative determination of selected metals in plant material. Assessment of pesticide toxicity, based on determination of germination index. Test of the biodegradability of the selected compound from the group of polycyclic aromatic hydrocarbons. Determination of the content of organochlorine pesticides in the samples from the environment.			
Required Reading: 1. D.J. Hoffman, B.A. Rattner, G.A. Burton, J. Cairns: Handbook of ecotoxicology, CRC Press, 2002. 2. C. H. Walker, R.M. Sibley, D.B. Peakall, S.P. Hopkin: Principles of ecotoxicology, Taylor & Francis, 2000. 3. F. Moriarty: Ecotoxicology, Academic Press, 1999. 4. D. Connell, P. Lam, B. Richardson, R. Wu: Introduction to ecotoxicology, Blackwell Publishing, 1999. 5. M.C. Newman, M.A. Unger: Fundamentals of Ecotoxicology, Lewis Publishers, 2003. 6. Murphy B.L. and Morrison R.D. (Ed.) <i>Introduction to Environmental Forensics</i> , Elsevier Academic Press, 2007. 7. Murphy B.L. and Morrison R.D. (Ed.) <i>Environmental Forensics</i> , Elsevier Academic Press, 2006. 8. Scientific papers			
Weekly Contact Hours: 6	Lectures: 3	Practical work: 3	
Teaching Methods: Lectures, seminars and student presentations, practical laboratory work, calculation and interpretation of results, consultations.			
Knowledge Assessment (maximum of 100 points): 100			
Pre-exam obligations	points	Final exam	points
Practical laboratory work	20	written exam	40
Seminar(s)	20	oral exam	20