Study Programme: Master Academic Studies - Environmental Protection Analyst

Degree level: Master

Course Title: Biological principles of environmental protection

Professor: Dr Ivana S Teodorovic, associate professor

Required/Elective Course: required for dopuni da ne nagadjam skracenicu

ECTS: 8

Requirements: none

Learning objectives:

The course objective is to provide the basic insight into ecosystem approach in environmental protection. It provides an integrative overview of the complexity of biological system and explains the basic ecological principles and postulates necessary for scientifically sound environmental management practice.

Learning outcomes:

Students would be able to critically analyse the results of biomonitoring programs, including ecotoxicological characterisation. Based on enhanced analytical skills, as a member of interdisciplinary team, the graduates should be capable of drawing sound conclusions and take part in decision-making.

Course Content:

Theoretical part

Ecosystems: natural, man-made, terrestrial, aquatic. Ecosystem integrity. Ecosystems in environmental protection and nature conservation. Basic ecological principles, processes and ecosystem approach to environmental protection. Anthropogenic pressures to ecosystem functions and integrity of terrestrial and aquatic ecosystems: direct and indirect impact of toxic pollutants, global changes and habitat alterations. Biological methods (biological quality elements) in environmental monitoring and ecological risk assessment: quantification, impact assessment, trend analysis and prognostics, mitigation of adverse ecological individual and multi stress ecological impact. Ecosystem approach to sustainable development and good management practice in environmental protection. Ecosystem restoration – rational, basic principles and examples of good management practices.

Practical part

Toxicity tests on various levels of biological organisation, data analysis, extrapolation and critical data interpretation.

Reading List:

1. D. Waltner-Toews: Ecosystem Sustainability and Health. A Practical Approach, Cambridge University Press – selected chapters, 2004.
2. W. K. Dodds: Freshwater Ecology – Concepts and Environmental Implications, Academic Press (an imprint of Elsevier Science Imprint), 2002 – selected chapters.
3. J. Kalff: Limnology, Prentice Hall, Inc., 2002 – selected chapters
4. D. J. Hoffman, B. A. Rattner, G. A. Jr. Burton, J. Jr. Cairns (eds.): Handbook of Ecotoxicology. CRC Press, Lewis Publishers, Boca Raton, Florida, USA, 2002. (selected chapters).
5. US EPA (United States Environmental Protection Agency), ECOTOX database, 2006.

Total hours:				
Lectures: 2(30)	Practicals: 2 (30)	Other: 2 (30)	Student research work:	

Methods of instruction:

Lectures, laboratory exercises, essays, individual consultations

Grading (maximum number of points 100)

Requirements	**points**	**Final exam**	**points**
Active participation in lectures	10	Practical exam	10
Active participation in practicals	30	Oral exam	30
Test(s)	15		

Pre-exam testing	5		
Remark:			