Course Unit Descriptor

Study Programme: Master Academic Studies in Chemistry - Quality Control and Environmental Management, Master Academic Studies in Environmental Protection - Environmental Protection Analyst

Course Unit Title: Sediment Quality

Course Unit Code: IKK-503

Name of Lecturer(s): Full Professor Dejan Krčmar, Associate Professor Dragana Tomašević Pilipović

Type and Level of Studies: Master of Science Degree

Course Status (compulsory/elective): Elective

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: 6

Prerequisites: None

Course Aims:

The aim of the course is to deepen students' knowledge of sediments as important segments of aquatic ecosystems, the processes that occur in the sediments and modern methods of sediment quality assessment, as well as to prepare students for the successful management of aquatic ecosystems, in which sediments play an integral part.

Learning Outcomes:

The student will be able to quote and explain the importance of sediments for the functioning of aquatic ecosystems; interpret processes occurring in sediments; independently apply methods of sediment quality assessment as a precondition for the successful management of aquatic ecosystems.

Syllabus:

Theory

Sediment quality indicators. The composition and structure of the mineral fraction of the natural organic matter. Pollutants relevant to sediments. General characteristics of the physical and chemical interactions in the sediment /water system and factors controlling them. Factors influencing the direction and intensity of interactions in the sediment /water system. Bioavailability. Methods for the assessment of pollutant pollutant bioavailability. Planning and design of monitoring, sediment and pore water sampling. Legal and conceptual frameworks for sediment management.

Practice

The student will apply different methodologies to assess the quality of a sediment sample in terms of heavy metals pollution. Project related to selected topic from curriculum.

Required Reading:

1. Sustainable Management of Sediment Resources, Volume 1: Sediment quality and impact assessment of pollutants. Edited by Damia Barcelo and Mira Petrović. Elsevier B.V., Amsterdam, 2007.
2. T.A.T. Aboul-Kassim, B.R.T. Simoneit: Interaction Mechanisms Between Organic Pollutants and Solid Phase Systems u: Pollutant-Solid Phase Interactions Mechanisms, Chemistry and Modeling (Ed. O.Hutzinger), Springer, 2001.
3. Schwarzenbach R.P., Gschwend P.M., Imboden D.M.: Environmental Organic Chemistry – 2nd Edition, Wiley, 2003.

Weekly Contact Hours: 4	**Lectures:** 2	**Practical work:** 2

Teaching Methods: Lectures, laboratory work, desk-study project, consultation.

Knowledge Assessment (maximum of 100 points): 100

Pre-exam obligations	points	**Final exam**	points
Practical work	30	Written exam	30
Project presentation	20	Oral exam	20