UNIVERSITY OF WARMIA AND MAZURY IN OLSZTYN

Faculty of Geoengineering

Course title: SYSTEMS OF SOIL REMEDIATION

ECTS credit allocation (and other scores): 2.0

Semester: spring

Level of study: ISCED-7 - second-cycle programmes (EQF-7)

Branch of science: Engineering and technology

Language: English

Number of hours per semester: 30

Course coordinator/ Department and e-mail: Dr. Habil. Eng. Mariusz Gusiatin, Associate Professor; mariusz.gusiatin@uwm.edu.pl

Type of classes: classes and lectures

Substantive content

Lectures: Characterization of soil and groundwater pollutants and their behavior in soil environment. Remediation – definition and classification of remediation systems (physical, chemical and biological methods), characterization of the agents/amendments used for soil remediation. Examples of soil remediation from full scale.

CLASSES (labs): Estimation of soil pollution level with heavy metal and their environmental risk. Physico-chemical characterization of amendments used for pollutant immobilization. Application of selected amendment in soil remediation. Soil washing experiment on removal pollutants from soil. Valorization of remediated soil.

Learning purpose: To learn about remediation systems for contaminated soils and groundwater and to be able to select and evaluate efficiency of remediation systems.

On completion of the study programme the graduate will gain:

Knowledge: knowledge on the problem of soil pollution, principles of functioning and design of selected remediation systems

Skills: ability to perform lab experiments and chemical analyses on soil remediation, ability to use indicators characterizing soil before and after remediation, evaluation of the efficiency of soil remediation with selected system.

Social Competencies: respectation of dangers posed by soil and earth pollution and raises awareness among others of the need to clean up the soil and groundwater environment

Basic literature: Pankaj Kumar Gupta, Basant Yadav, Sushil Kumar Himanshu, Advances in Remediation Techniques for Polluted Soils and Groundwater, Elsevier, R. 2021; laboratory handbook

Supplementary literature: ---

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: participation in laboratory classes, consultation (10 h)

Student's independent work: preparation for lab classes and final test, report writing (10 h)