



FACULTY: ENVIRONMENTAL ENGINEERING

COURSE TITLE: Soil Remediation

Number of contact hours: 40

Duration: 1 semester (spring)

ECTS credits: 4

Programme description: The course is focused on soil and groundwater contamination by inorganic and organic compounds. Its scope covers contaminants occurrence and fate, acceptable levels and risk assessment, different approaches and technologies of extensive and intensive remediation of polluted areas. These issues are addressed through lectures, laboratory classes, computer modelling and individual projects.

Specific problems discussed during lectures, laboratories and project classes will cover:

- Characterization of soil and groundwater environment, common pollutants and their fate in soil and groundwater
- Standards of soil and groundwater quality
- Risk assessment methods for soil and groundwater contamination
- Soil and groundwater remediation technologies: barriers, immobilization, physical, chemical methods, bioremediation
- Modelling and calculating of contaminant plume spread

Students will gain knowledge about characteristics and fate of most common soil and groundwater pollutants; methods of risk assessment for soil and groundwater; different remediation technologies: their applicability for specific inorganic and organic contaminants, principles of action etc. Students will be able to select proper remediation technology depending on a type of pollution and local conditions as well as to conduct basic calculations.

Course type (hours): lectures (15), laboratory (10), computer laboratory (5), project (10)

Literature: [1] Alvarez P., Ilman W. — Bioremediation and natural attenuation, 2006, John Wiley& Sons

[2] Suthersan S., Payne F. — In situ remediation engineering, Boca Raton, 2005, CRC Press

[3] Publications (chapters, papers, etc.) recommended by course teacher during classes

Assessment method: written test, laboratory activity and reports, individual projects

Lecturer: dr hab. inż. Tomasz Baczyński

Contact person (e-mail): tomaszb@vistula.wis.pk.edu.pl