



## COURSE DATASHEET

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| <b>Semester:</b>               | 2015/16/2                               |
| <b>Course:</b>                 | Soil Science and Soil Chemistry         |
| <b>Code:</b>                   | VEMKKVB212T                             |
| <b>Responsible department:</b> | Department of Environmental Engineering |
| <b>Department code:</b>        | MKKV                                    |
| <b>Responsible instructor:</b> | Dr. Erzsébet Horváth                    |

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### Course objectives:

Studying of soil-components, their reactions with the contaminants; parameters influencing the accumulation and transport of the pollutants;

### Course content:

1. Definition of soil; its main components; parameters of soil formation; 2. Weathering of rock; Different weathering processes; 3. Characterization of rock and mineral components in the soil; 4. The organic components of the soil; Formation of humic substances and their role in the process of soil formation; 5. Complexation, ion-exchange and redox properties of humic substances; 6. Soil colloids, processes on the colloid surfaces: adsorption, adhesion, cohesion and protolysis; 7. Acid-base properties of the soil; redox reactions; Cessation of colloid systems; 8. Reactions of pollutants in the soil; 9. The most important parameters influencing the mobility of the pollutants; 10. Structure of the soil; Pore-volume, wet, air, heat and nutriment circulation; 11. Classification of soils, destruction of the soil; 12. The basis of the soil mapping 13. The effects of cultivation, fertilization and irrigation for the soil; 14. Monitoring systems, data bases; 15. The effects of pollutants in the soil for environmental elements and ecosystem;

### Requirements, evaluation and grading:

According to the requirements of fulfillment.

### Required and recommended readings:

Stefanovits Pál: Talajtan. Mezőgazdasági Kiadó, 1992. Filep György: Talajkémia. Mezőgazdasági Kiadó, 1991. Ulrich Förstner: Környezetvédelmi technika. Springer Hungarica Kiadó Kft. 1993.