

# Soil and Groundwater Pollution

Civil and Environmental Engineering

Instructor: K. Nam

## ■ Topics

### I. Soil and Pollutants

- 1) Water and Soil
  - Physical-Chemical Characteristics of Waters (EPS, Ch.3)
  - Physical-Chemical Characteristics of Soils and the Subsurface (EPS, Ch.2)
  - Biotic Characteristics of the Environment (EPS, Ch.5)
- 2) Major Pollutants
  - Common Hazardous Wastes: Nomenclature, Industrial Uses, Disposal Histories (HW, Ch.2)
  - Common Hazardous Wastes: Properties and Classification (HW, p.155-177)
- 3) Interactions between Soil and Pollutants (fate and transport)
  - Physical Processes Affecting Contaminant Transport and Fate (EPS, Ch.6)
  - Contaminant Release and Transport from the Source (HW, Ch.8)
  - Chemical Processes Affecting Contaminant Transport and Fate (EPS, Ch.7)
  - Biological Processes Affecting Contaminant Transport and Fate (EPS, Ch.8)

### II. Site Investigation, Evaluation and Remediation

- 1) Contamination Investigation - Source Analysis (HW, Ch.4)
- 2) Risk Assessment (EPS, Ch.14/Ch.13)
- 3) Remediation Technologies - Soil and Groundwater Remediation (EPS, Ch.19)

### III. Special Topics

- 1) Ecological Engineering (생태공학, Ch.3-6)
- 2) Case Study: Ecological Restoration (Environmental Science, Ch.9)

(Text Books)

- EPS: Environmental and Pollution Science (2nd Ed), I.L.Pepper, C.P.Gerba, M.L.Brusseau, 2006, Academic Press
- HW: Hazardous Wastes-Sources, Pathways, Receptors (2nd Ed), R.J. Watts, 1998, John Wiley & Sons
- Ecological Engineering-Bridging Between Ecology and Civil Engineering, 2005, Hein Van Bohemian, Aeneas Technical Publishers

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	mm/dd	내 용
1	09/03	Introduction(수업내용, 문제풀이, 조별과제 등)
2	09/05	Physical-chemical characteristics of water
3	09/10	Physical-chemical characteristics of soils and the subsurface
4	09/12	Biotic characteristics of the Environment
5	09/17	Common Hazardous Wastes(1)
6	09/24	Common Hazardous Wastes(2)
7	09/26	Physical processes affecting contaminant transport and fate
8	10/01	Contaminants Release and Transport from the Source(1)
9	10/08	Contaminants Release and Transport from the Source(2)
10	10/10	Chemical processes affecting contaminant transport and fate(1)
11	10/15	Chemical processes affecting contaminant transport and fate(2)
12	10/17	Biotic characteristics of the environment
13	10/22	Biological processes affecting contaminant transport and fate(1)
14	10/24	Biological processes affecting contaminant transport and fate(2)
15	10/29	Exam
16	10/31	Project preview
17	11/05	Source analysis
18	11/07	Risk assessment
19	11/12	Risk-based remediation
20	11/14	Soil and groundwater remediation(1)
21	11/19	Soil and groundwater remediation(2)
22	11/21	Soil and groundwater remediation(3)
23	11/26	Ecological Engineering(1); Applied Ecological Engineering
24	11/28	Ecological Engineering(2); Case Study
25	12/03	Remediation project review (1)
26	12/05	Remediation project review (2)
27	12/10	Presentation (Group 1,2)
28	12/12	Presentation (Group 3,4)
29	12/17	Presentation (Group 5,6)