Advanced Foundation Engineering(Ⅰ)

Books & Refs.

1. Foundation Engineering Handbook, 1991

edited by H-Y Fang (formerly winterkorn & Fang, 1975)
Van Nostrand Reinhold

2. Foundation Analysis & Design (1997, 5th)

by J.E. Bowles
McGraw-Hill companies, Inc.

3. Principles of Foundation Engineering (1999 4th)

(한글판: 다스의 기초 공학, 2001, 김수일/김명모/신은철)

by B.M. Das
Jones & Bartlett Publishers

Homework #1

ⅰ) Summary report on Bowles' 1-1 ~ 1-6.

ⅱ) Set-up an example problem and follow the basic steps learned today(Lecture #1) to solve the problem.

※ *"The foundation is no better than its supporting soil, the structure no better than its foundation."*

Basic Steps in Engineering Analysis

1. Identification of Field Conditions.

- determining geotechnical properties of geo-materials, field stress states, seepage quantities, ground water levels, ...

2. Seek idealization of field situation to a solvable problem.

- involve engineering judgement, neglect unimportant quantities

3. Develop models.

- physical, analytical, or numerical models

→ mathematical formulation & solution

making assumptions : linear elastic, homogeneous, small deformation, isotropic...

4. Interpretation of solution.

- check if it accord with intuition, practical sense, specifications...

5. Field trial & comparison with solution.

-compare with predictions

Example problem: Beam on Elastic Foundation

· Peculiar Aspect of Soils as a Structural Material

1. Shear Strength

2. Lateral Pressure

· Comparison of Clay / Sand / Rock Mass

	Clay	Sand	Rock Mass
Strength			
Compressibility			
Permeability			
Stress history			