

# Soil Dynamics(흙의 동역학)

– Use English Only during Class hours –

Professor	Myoung Mo Kim
Office	38-401
Tel	880-7348
e-mail	<a href="mailto:geotech@snu.ac.kr">geotech@snu.ac.kr</a>
Course No.	457.602 (3-3-0)
Semester	2008, Spring
Course Meeting Times	Two sessions/week 1.5hours/session
Level	Graduate

## 1. Synopsis

To investigate dynamic properties of soils, we will study the fundamentals of vibration and wave propagation, and consider test methods to analyze the dynamics properties of soils in field and laboratory. In addition, we will also study methods to predict and estimate the liquefaction and design methods for geotechnical structures likely to experience dynamic loads, such as machine foundations, retaining walls and pile foundations under dynamic loads.

## 2. Contents

week 1 : Soil Dynamics : Overview

week 2 : Theory of Vibrations (1)

week 3 : Theory of Vibrations (2)

week 4 : Wave propagation : Overview

week 5 : Outline of Seismic Design and Determination of Design Ground Motion

week 6 : Wave propagation in an Elastic Medium

week 7 : Machine Foundations

week 8 : Design Procedures For Dynamically Loaded Foundations

week 9 : Mid-term Exam

week 10 : Ground Response Analysis and Evaluation of Liquefaction Potential

week 11 : Dynamic Stress Deformation and Strength Characteristics of Soils

week 12 : Dynamic Earth Pressure Problems and Retaining Walls

week 13 : Earthquake Resistant Design of Geotechnical Structures

week 14 : Liquefaction of Soils

week 15 : Evaluation of Dynamic Soil Properties

week 16 : Term paper presentations

### **3. Course Grading**

Homework : 20 %

Attendance : 10 %

Term paper presentation : 20%

Examination : 50%

### **4. Text & References**

(1) Soil Dynamics, 1981

Shamsher Prakash, McGraw-Hill, Inc.

(2) Vibrations of Soils & Foundations, 1970

R.E. Rechart, Jr. / R.D. Woods / J.R. Hall, Jr

Prentice Hall, Inc.

(3) Geotechnical Earthquake Engineering, 1996

Steven L. Kramer, Prentice-Hall, Inc.

(4) AA. Balkema publishing Co.

'Handbook on Liquefaction Remediation of Reclaimed Land'

### **5. Lecture Notes**

<http://geolab.snu.ac.kr>