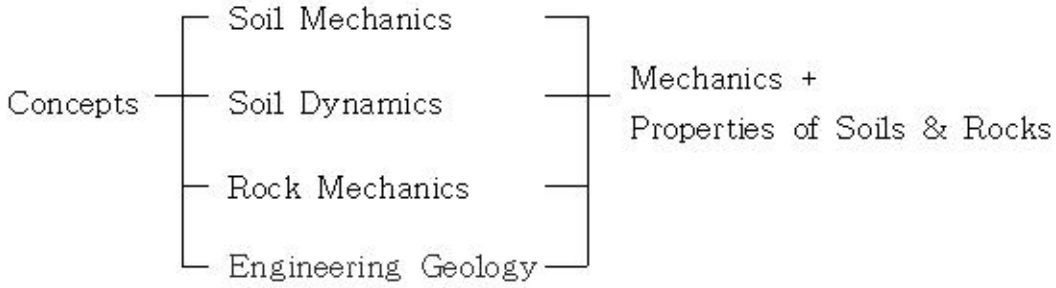
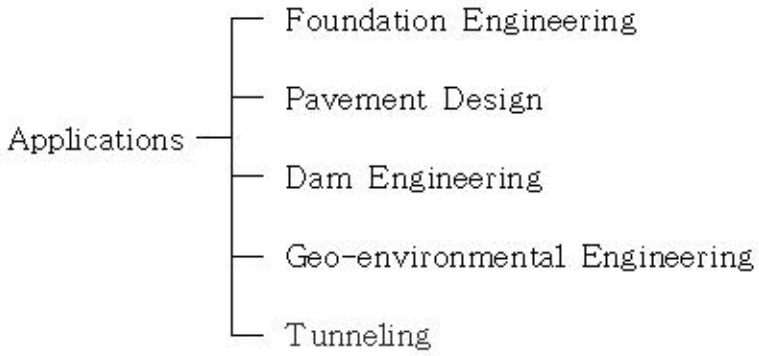
Geotechnical Eng. Overview

SM & FE → GT → GT & GE (U.S.A.) → SM & GT (International)
(Hamburg, 1997)

Related Subjects :





Objects to be studied :

1. Foundations - Shallow / Deep
   - Buildings, Bridges, Plants, Dams.....
   - Bearing Capacities / Settlements

2. Slopes Stability

- Natural / Cut / Fill

3. Retaining Structures

- Permanent Walls : Gravity W, Cantilever W, ...
- Temporary Walls : H pile + wood, Slurry, CIP, SCW.....

4. Pavements

- Cement Concrete
- Asphalt Concrete

5. Tunnels - w/ Structural Eng.

- ASSM / NATM / TBM / Shield

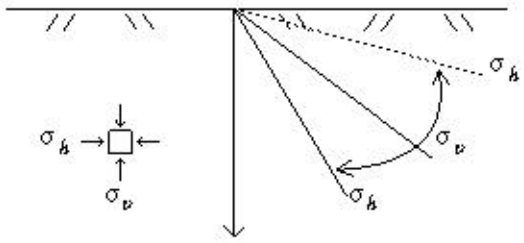
6. Dams - w/ Hydro-Eng, w/ Structural Eng.

- Earth-fill, Rock-fill
- Concrete

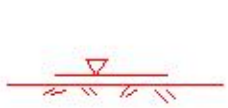
7. Environmental Geotechnology
- Polluted Soils
- Waste disposal sites

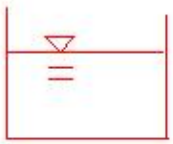
Preliminaries for Soil mechanics

· $K = \frac{\sigma_h}{\sigma_v}$

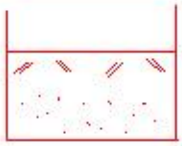


· $K_{water} = 1$

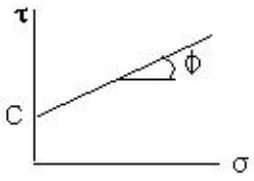
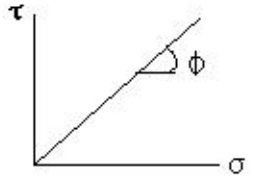
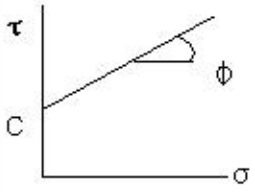
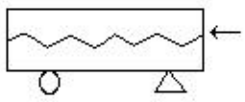




$K_{soil} \fallingdotseq 0.3 \ (\sim 3.0)$



· Soils :

	Cohesive Soils clay	Cohesionless Soils Sand	Rocks + joints Rock mass
Strength			
Compressibility	Stiff ↕ Soft	Dense ↕ Loose	joint / fault
Permeability	$k \leqq 10^{-5} cm/sec$	$k \geqq 10^{-4} cm/sec$	dilation 
Stress History	matters much	less	RMR / Q