

# **Geotechnical Engineering I**

**Dr. Naser A. Al-Shayea**

Professor, CE, KFUPM

# Soil profile

- Def.: Soil profile: vertical section through a soil deposit, showing thickness and sequence of individual soil strata.
- granular (cohesionless) soils
  - gravel
  - sand
- fine-grained soils
  - Silt (cohesionless)
  - clay (cohesive)
  - organic soils
    - peat
    - muck
    - organic silt
    - organic clay

# Soil profile

- Def.: Soil profile: vertical section through a soil deposit, showing thickness and sequence of individual soil strata.
- Soil Profile from Site Exploration
  - physical properties
  - soil profile (idealized)
  - soil exploration
    - reconnaissance
    - Boring
      - lab tests
      - field tests
  - soil investigation program
    - Depth
    - #
    - Location
  - Sample
- groundwater level

# Basic Soil Names

- ----- 75 mm  
Gravel
- ----- 4.75 mm  
Sand
- ----- 0.075 mm            can't be seen by unaided eye  
Silt
- ----- 0.002                (AASHTO)  
Clay (plasticity)
- -----
- **Coarse**
  - Particle size range
  - Color
  - Homogeneity
- **Fines**
  - Plasticity
  - Consistency
  - Sensitivity
  - W
- **Fills : man-made deposits**
  - proper placement
  - random