**Bare Essentials of Soil Mechanics by John Burland**

A suite of five short videos (2′ to 6′) on the engineering behavior of soils. The emphasis is on the particulate nature of soils and its implications for soil strength.

<https://expeditionworkshed.org/sub_categories/soil/>



• **1.** **Introduction to Soil Mechanics** (2′ 41′′)

<https://www.youtube.com/watch?v=ZuofAC9rq58>

• **2.** **The particulate nature of soils** (2′ 20′′) – Main point: soil strength = shearing resistance at particle contacts

<https://www.youtube.com/watch?v=mB3O6hQAoZA>

• **3.** **The effect of weight/gravity on soil strength** (4′ 48′′)

<https://www.youtube.com/watch?v=-EUQcluC-ZQ>

• **4.** **The effect of particle size distribution and shape on soil strength** (3′ 26′′)

<https://www.youtube.com/watch?v=qY_PRCmg85E>

• **5.** **The effect of water on soil strength** (6′ 08′′) – Main point: built up of water pressure reduces contact force (and, hence, shearing resistance). The same video continues with the effect of surface tension on soil strength.

<https://www.youtube.com/watch?v=a-6YbkZJ5UY>

Example use of the Burland videos (in the first course on Soil Mechanics taught at NTUA). When we first talked about soil composition and structure, I asked students to watch videos No 2 and 3. Then, when we talked about stresses due to soil’s self-weight and effective stress, I reminded students about the effect of particle size distribution and shape on soil strength (attached slide No 1: memorable visuals from video No 3) and brought once more to their attention the Burland videos by incorporating in the presentation a still picture-memorable visual from video No 5. Again I asked students to watch video No 5 in their own time.

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