

College of Science
Department of Earth Science and
Petroleum

Engineering Geology

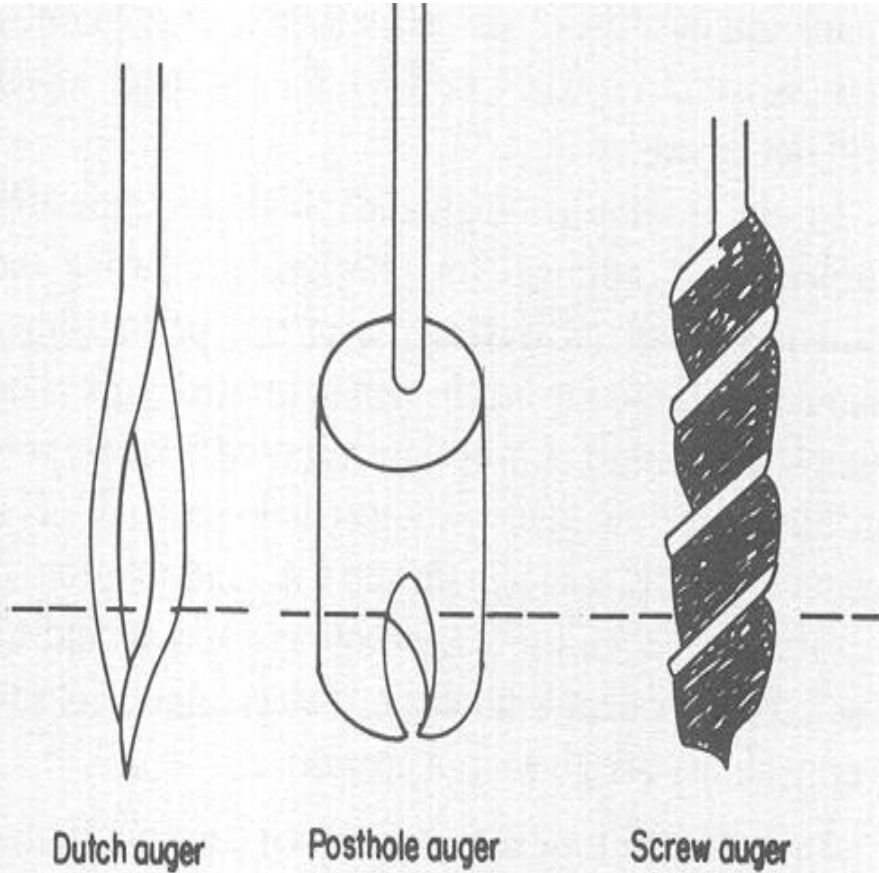
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Outline

- Soil sampling
- Phase relationships
- Phase relationships equation

- Exercises

Soil Sampling

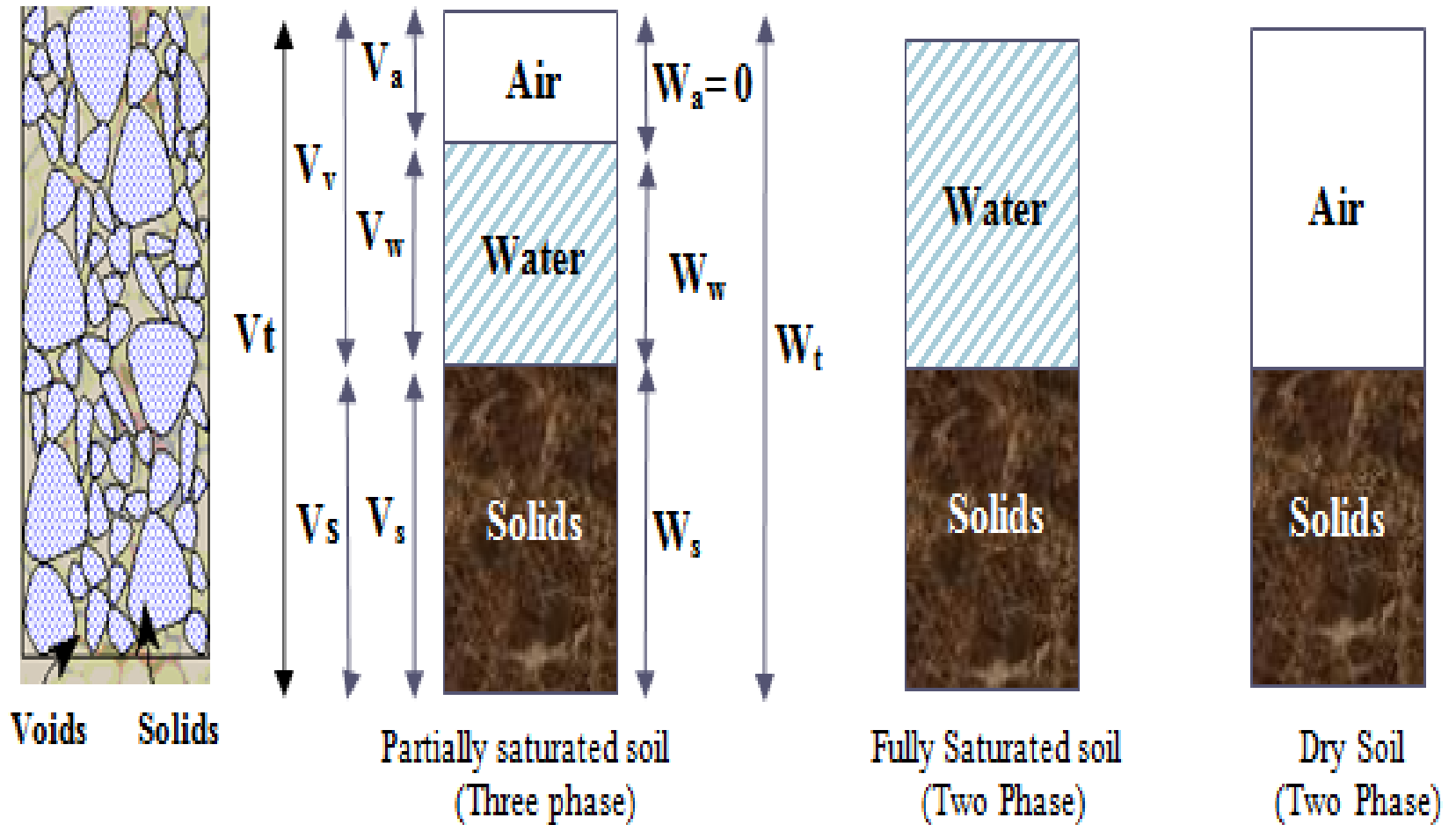


Phases Relationships

Weight-volume relationships

- Earth materials have two or three phase. The phases are solid particles, water and air.
- The fully saturated materials have two phases
- The partially saturated materials contain three phases
- Dry soil

Phases Relationships



Equations

- Porosity (n): $= V_v/V_t * 100$
- Void Ratio (e): V_v/V_s
- Degree of saturation (S_r): $V_w/V_v * 100$
- Water Content (w): $M_w/M_s * 100$
 $W_w/W_s * 100$
- Moisture Content (M_c): $M_w/M_t * 100$
 $W_w/W_t * 100$

Exercise

Ex.1) The total volume of a soil sample is 500cm^3 , its total mass is 800g . The mass and volume of the solid particles are 700g and 260cm^3 respectively. Find:

- a) porosity
- b) void ratio
- c) water content
- d) moisture content
- e) degree of saturation

Thanks

Any Question