

SOIL MECHANICS

3-0-2-0-11

Soil classification and composition; Stresses within a soil, effective stress principle, stress point, and stress path; soil-water systems, capillarity, Darcy's law, permeability, hydraulic heads, piping, quicksand condition, seepage, flownets; compressibility and consolidation characteristics; shear strength, direct shear and triaxial shear test, Mohr-coulomb strength criterion, drained and undrained conditions, consolidated drained and undrained tests, unconfined compressive strength test, strength of loose and dense sand, NC and OC soils, dilation, pore pressures, Skempton's coefficient; Compaction characteristics, water content-dry unit weight relationships, OMC, maximum dry unit weight, field compaction control; Slope stability analysis.

Laboratory sessions: Visual identification of soils; Specific gravity and Atterberg limits; Sieve and Hydrometer analysis; California Bearing Ratio test; Proctor compaction test; Permeability Constant head; Permeability falling head; In situ field density of soil (sand cone/core cutter); Unconfined compression test; Direct shear test; Triaxial (UU); Consolidation tests (loading and unloading).