

## FOUNDATION DESIGN

3-0-1-0-10

Site investigations, methods of drillings, Sampling, in-situ test, SPT, CPT, plate load and dynamic tests, groundwater levels; Earth pressure theories, Coulomb and Rankine approaches,  $c-\phi$  soils, smooth and rough walls, inclined backfill; Bearing capacity, general, local and punching shear failures, corrections for size, shape, depth, water table, compressibility, ultimate and allowable stress, methods based on in-situ tests; Settlement of foundations, Design of foundation, types of foundation-shallow/deep, isolated, combined, mat, etc, contact pressure distributions; Stresses due to applied loads, Stress distribution (Boussinesq, Westergaard, Newmark's influence chart) under various load conditions; Deep foundations, pile; and Retaining wall design.

**Laboratory Session:** Pit Sampling and Auger boring; Standard penetration test; Static Cone penetration test Dynamic Cone penetration test; Field Permeability; Plate load test