CE6350 – Critical State Soil Mechanics

Credit Distribution: C:9 L:3 T:0 P:0 E:0 O:6 TH:0

Course Type: Theory

Description: To introduce the basic critical state frame work to interpret soil behavior under different stress path conditions.

Course Content: Stresses and strains in soils; stress, strain paths and invariants; one-dimensional and isotropic compression of soils and idealisation; state boundary of compression of soils; stress paths and soil tests; critical state line and Roscoe surface; Drained and undrained planes; Critical state line for sands; Behaviour of overconsolidated soils and Hvorslev surface; Behaviour of soils before failure; Interpretation of index tests in the light of critical state concept; Cam-clay models, Determination of critical state parameters.

Text Books: NIL

Reference Books

- Atkinson, J. H. and Bransby, P. L. (1982). The Mechanics of Soils- An Introduction to Critical State Soil Mechanics, McGraw-Hill Book Company Limited, London.
- Azizi, F. (2000). Applied Analysis in Geotechnics. E & FN Spon, London.
- Budhu, M. (2006). Soil Mechanics and Foundations, John Wiley & Sons.
- Ortigao, J. A. R. (1995). Soil Mechanics in the Light of Critical State Theories-An introduction, A. A. Balkema, Rotterdam, Netherlands.
- Schofield, A. N. and Wroth, C. P. (1968). Critical State Soil Mechanics. McGraw-Hill Book Company Ltd., London.
- Wood, D. M. (1990). Soil Behaviour and Critical state Soil Mechanics. Cambridge University Press, New York.
- Wood, D. M. (2004). Geotechnical modelling, Spon Press, London.

Prerequisite: NIL